



State Highway Congestion Monitoring Program (HICOMP)

Annual Data Compilation



June 2008

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Foreword

The purpose of the State Highway Congestion Monitoring Program (HICOMP) annual data compilation is to measure congestion occurring on urban area freeways in California. The California Department of Transportation (Department) has been publishing the HICOMP data compilation since 1987.

The congestion information is currently required by statute. In September 2002, the Governor signed into law Assembly Bill 2535 (Diaz) which states:

The Department shall, within existing resources, collect, analyze, and summarize highway congestion data and make it available upon request to California regional transportation planning agencies, congestion management agencies, and transit agencies. [California Government Code Section 14032.6.]

The 2007 HICOMP data compilation presents congestion data on California urban freeway segments with a history of recurrent congestion. It does not include congestion on other State highways or local surface streets. Nonrecurrent congestion such as holiday, maintenance, construction or special-event generated traffic congestion is also not included. This document represents weekday traffic conditions and is useful for finding general trends and making regional comparisons of freeway performance.

Some estimates presented herein rely on a limited number of observations. Where automated detection is insufficient, floating vehicles are driven on congested segments of the urban freeways in the spring and fall in the morning and the evening peak commuter traffic to collect the average daily congestion figures. This is labor intensive and only minimal actual runs are conducted. Actual conditions vary daily and seasonally. Where no floating vehicle or automatic data is available for a given area, estimates may be made.

The Department is embarking on the development of a more comprehensive freeway performance assessment report for the future. This new report will address shortcomings of the current approach and expand the report to include additional measures of performance.

Acronyms

Average Vehicle Occupancy = AVO

Congested Directional Miles = CDM

Daily Vehicle-Hours of Delay = DVHD

Global Positioning System = GPS

Highway Congestion Monitoring Program = HICOMP

High Occupancy Vehicle = HOV

Interstate = I

Metropolitan Transportation Commission = MTC

Miles per Hour = MPH

State Route = SR

Total Directional Miles = TDM

Traffic Accident Surveillance and Analysis System = TASAS

United States = US

Vehicle Miles of Travel = VMT

Vehicles per Hour per Lane = VPHPL

1. Introduction

Transportation facility construction and expansion have not kept pace with the growth in travel demand. This has resulted in an increase in urban freeway congestion over the past decade in most of California's metropolitan areas. From the public's perspective, the most noticeable effect of congestion on urban mobility is increased traffic delay. "Rush-hour" traffic in larger cities no longer occurs only during the traditional morning and evening peak periods, but extends into the day.

Congestion can be described as either *recurrent* or *nonrecurrent*. Recurrent congestion is regular, everyday peak-period delays that occur when the capacity of a freeway is exceeded by travel demands and low speeds result. Irregular events such as accidents, sporting events, maintenance, or short-term construction, can cause nonrecurrent congestion. The purpose of the HICOMP is to present recurrent congestion data. In some cases, this document discusses nonrecurrent congestion, but only to arrive at an approximation of the impacts of total congestion.

An objective of the Department is to increase the efficiency of existing roads and other transportation facilities to reduce delays. The data compiled in this document helps the Department meet this objective by identifying the locations and extent of recurrent congestion on California's urban freeways. The HICOMP database provides the information needed to evaluate freeway performance, so the Department can establish priorities and direct resources to areas with the most congestion. Data obtained from congestion monitoring may also be used to evaluate the effectiveness of technologies and strategies used to reduce congestion by comparing the changes in congestion before and after the implementation of new systems and programs.

1.1 Definition of Recurrent Congestion

The HICOMP defines recurrent congestion as a condition lasting for 15 minutes or longer where travel demand exceeds freeway capacity and vehicular speeds are 35 miles per hour (mph) or less during peak commute periods on a typical incident-free weekday. This document uses three parameters to describe recurrent congestion:

1. *Magnitude*: The difference in time between the time it takes to travel a segment at the recorded congested speed and the travel time at 35 mph. Daily vehicle-hours of delay (DVHD) is the term used to express the magnitude of the delay.
2. *Extent*: The length of a freeway segment, by direction, that experiences speeds below 35 mph for 15 minutes or more. Extent is expressed in terms of congested directional miles (CDM). It is important to note that a one-mile stretch of roadway contains two directional miles (one mile for each direction of travel). Directional miles differ from lane-miles, which is the number of lanes in a given direction multiplied by the length of the segment in that direction.

3. *Duration:* The length of time expressed in hours that the directional segment remains congested.

The HICOMP reports the magnitude and extent of congestion. Maps included in this document show the location and duration of congestion for all the Department's districts experiencing congestion on freeways. Districts 1 (Eureka), 2 (Redding), and 9 (Bishop) are not included in the documents, because traffic conditions in those districts lack the congestion magnitude of the other districts.

1.2 Data Collection Methodologies

The Department uses two principal methods to collect congestion data on urban freeways. The most common method is to drive specially equipped cars at regular intervals along freeways during the hours of recurrent peak-period congestion. This is called the *floating vehicle* method because the vehicles "float" with the traffic flow

A floating vehicle system consists of either a fixed transmission sensor mounted in the engine compartment or a global positioning system (GPS). The transmission sensor or tachometer, counts the number of wheel rotations in one second and sends that data to a laptop computer. Software on the computer then translates this data into meaningful time, distance, and travel speed information. A GPS system uses satellite technology to identify the location of the vehicle. Computer software identifies the freeway, direction of travel, and average speed of the vehicle.

The second method is to use automatic detection that collects data from fixed, regularly spaced electronic sensors embedded in or placed alongside urban area freeways. In the last few years, the Department has been increasing its deployment of automatic detection. Currently, over 3,750 directional miles of California's freeways are monitored using automatic detection.

The most common type of automatic detection uses inductive loops (commonly referred to as "loop detectors"). New technologies are also being employed including radar, infrared sensors, and vehicle transponder tags, such as those used for toll roads or bridges.

Exhibit 1-1 shows each district that reports congestion for the HICOMP, the counties monitored in that district, and the type of technology used to collect congestion data. Exhibit 1-1 also shows the percentage of the congested miles that were analyzed using the two types of technology. Appendix "A" at the end of this compilation contains a map showing all the Department's districts and the counties that make up those districts.

Exhibit 1-1: Data Collection Methodology by District Reporting HICOMP Results

District (Office Location) Counties Monitored	Floating Vehicles	Automatic Detection
District 3 (Marysville) El Dorado, Placer, Sacramento, Yolo	100%	
District 4 (Oakland) Alameda, Contra Costa, Marin, San Francisco San Mateo, Santa Clara, Solano, Sonoma	100%	
District 5 (San Luis Obispo) Monterey, San Luis Obispo Santa Cruz, Santa Barbara	100%	
District 6 (Fresno) Fresno, Kern	100%	
District 7 (Los Angeles) Los Angeles, Ventura	4%	96%
District 8 (San Bernardino) Riverside, San Bernardino	97%	3%
District 10 (Stockton) San Joaquin, Stanislaus	93%	7%
District 11 (San Diego) San Diego	12%	88%
District 12 (Irvine) Orange	100%	
Average	57%	43%

The raw field data, combined with hourly traffic volumes, are converted into average DVHD and CDM. The following formula produces the total delay associated with each segment:

$$\text{Daily vehicle-hours of delay} = V \times D \times T$$

Where,

V = Volume in vehicles per hour = Number of lanes \times Vehicles per hour per lane (VPHPL)¹,

D = Duration of congestion in hours and

T = Travel time (in hours) to cover a given distance under congested conditions minus the travel time at 35 mph.

¹ VPHPL is the design of a road segment. Most districts use a value of 2,000 VPHPL, although District 4 (Oakland) has been using a value of 2,200 VPHPL since 1995.

2. Statewide Summary

Since the 2006 HICOMP data compilation, California urban freeway recurrent congestion increased 4 percent from 560,362 DVHD to 581,674 DVHD. The CDM of urban area freeways increased 7 percent over the same period, increasing from 2,014 in 2006 to 2,159 in 2007.

Exhibits 2-1 through 2-4 summarize these congestion results for each district:

- Daily vehicle-hours of delay (Exhibit 2-1)
- Congested directional miles (Exhibit 2-2)
- Total directional miles (TDM) (Exhibit 2-3)
- Congested directional miles to total directional miles (Exhibit 2-4)

As shown in Exhibit 2-1, delay statewide increased to 581,674 DVHD in 2007 compared to 560,362 in 2006. The majority of the increase occurred in District 4 (San Francisco Bay Area). Other districts showing increases are District 7 (Los Angeles-Ventura), and District 8 (San Bernardino-Riverside). The remaining districts show declines or are unchanged.

Two districts make up 59 percent of all DVHD in California. District 7 accounts for approximately 31 percent of all delay, while District 4 contributes another 28 percent. The other southern California Districts 8, 11 (San Diego), and 12 (Orange County) account for 37 percent of delay, and the remaining districts contribute approximately 4 percent.

Exhibit 2-2 shows the CDM for each district. The CDM statewide increased by 7 percent from 2,014 miles last year to 2,153 miles in 2007. Districts 4 and 8 contributed the most to this increase. District 4 gained 56 CDM between 2006 and 2007 (14 percent increase), while District 8 gained 69 CDM (45 percent increase). District 3 (Sacramento) gained nine CDM (9 percent increase), District 5 (San Luis Obispo) gained two CDM (4 percent increase), District 7 gained 17 CDM (3 percent increase), and District 11 gained four CDM (1 percent increase). District 12 lost 16 CDM (6 percent decrease), and District 10 (Stockton) lost five CDM (12 percent decrease).

District 7 makes up 30 percent of all CDM statewide with District 4 comprising an additional 21 percent. The Southern California Districts 8, 11, and 12 make up 35 percent of CDM with the remaining districts making up the remaining 13 percent.

Exhibit 2-3 shows total urban area freeway directional miles for each district. Between 1998 and 2007, statewide total directional miles grew by 192 miles (a 4 percent increase). This increase is primarily because new freeway miles were built. However, some existing urban road miles were upgraded to "freeway" status.

Exhibit 2-4 illustrates the extent to which congestion is present on the State's freeway network. These results are calculated by taking the CDM (Exhibit 2-2) and dividing by the total directional miles (Exhibit 2-3).

As shown in Exhibit 2-4, 46 percent of the State's total urban freeway miles in 2007 were congested during typical peak hours. Since 2002, this percentage has been growing slightly. Approximately 65 percent of District 12's urban freeway miles were congested during peak hours, and 63 percent of District 11's and 60 percent of District 7's urban freeway miles were congested during peak hours. For each of the remaining districts, less than half of all urban freeway miles were congested during peak hours.

Exhibit 2-5 and Exhibit 2-6 display the delay and congested mile trends for each district. Exhibit 2-5 shows that District 7 leads the State in DVHD. District 4 grew rapidly between 1994 and 2000. Between 2000 and 2003, District 4's delay declined dramatically, but has increased since that time. District 8 shows an increase in delay since 2004. District 12 has shown consistent delay increases since 2001, although this growth has flattened in recent years.

Exhibit 2-6 shows District 7 accounting for the most CDM. In District 7, CDM has remained steady since the year 2000, while CDM has increased slightly in District 4, especially in the last year. District 8 has shown consistent increases over the past several years, while District 12's growth has declined with a drop in CDM this year. District 11's CDM grew dramatically during the late 1990s, but CDM has been mostly steady since the year 2000.

As illustrated in Exhibit 2-7, statewide DVHD generally grew steadily between 1987 and 2000. Between 2000 and 2003 DVHD declined, but has been growing steadily ever since. CDM declined slightly in 2006, but has otherwise shown modest growth since 2000.

Exhibit 2-8 shows how counties compare in 2006 and 2007 in terms of delay. Marin County moved into the top ten by replacing San Francisco County for the number 10 position. The rest of the top ten counties remained unchanged since last year with Los Angeles, Orange, Alameda, San Diego, Riverside, Santa Clara, Contra Costa, San Bernardino, and Sacramento counties remaining the most congested. San Bernardino continued its move up the top ten, replacing Sacramento for the number 8 position in 2007. Alameda County replaced San Diego for the number 3 position.

Exhibit 2-9 shows approximate costs that congestion imposes on Californians. It is assumed that nonrecurrent congestion is equal to recurrent congestion. Therefore, total delay is twice the measured recurrent delay. In 2007, the estimated delay cost California drivers and passengers approximately \$23 million per day in lost time and excess fuel consumption. This estimated delay added 582 tons of emissions to the air, compared to what would have been emitted at uncongested speeds. These estimates are based on the most recently available data.

Exhibit 2-10 shows changes in annual vehicle miles traveled (VMT) from 1987 to 2007 on highways operated by the State. The State's VMT has increased since the late 1980s, although the growth has slowed in the last three years.

Exhibit 2-1: Daily Vehicle-Hours of Delay by District 1998-2007

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Percent of Statewide 2007
District 3	7,809	8,907	10,896	16,200	14,872	13,226	17,712	21,830	17,648	13,827	2%
Annual % Change	53%	14%	22%	49%	-8%	-11%	34%	23%	-19%	-22%	
District 4	112,000	128,300	177,600	155,500	147,900	121,800	124,190	135,700	143,900	161,700	28%
Annual % Change	12%	15%	38%	-12%	-5%	-18%	2%	9%	6%	12%	
District 5	2,020	2,598	5,154	6,016	5,937	6,453	6,453	6,453	7,571	7,040	1%
Annual % Change	23%	29%	98%	17%	-1%	9%	0%	0%	17%	-7%	
District 6	75	257	334	522	508	507	292	296	561	375	0%
Annual % Change	-31%	245%	30%	56%	-3%	0%	-42%	1%	90%	-33%	
District 7	142,857	128,623	166,294	183,209	165,861	178,491	171,438	165,141	172,399	178,938	31%
Annual % Change	3%	-10%	29%	10%	-9%	8%	-4%	-4%	4%	4%	
District 8	29,368	33,384	38,244	32,901	36,601	30,035	27,480	35,284	52,100	54,456	9%
Annual % Change	30%	14%	15%	-14%	11%	-18%	-9%	28%	48%	5%	
District 10	2,711	3,292	3,930	3,340	4,127	4,064	3,685	5,010	3,709	3,444	1%
Annual % Change		21%	19%	-15%	24%	-2%	-9%	36%	-26%	-7%	
District 11	42,354	44,203	51,712	58,027	64,595	67,163	65,768	62,796	63,833	63,099	11%
Annual % Change	7%	4%	17%	12%	11%	4%	-2%	-5%	2%	-1%	
District 12	78,906	78,796	71,286	66,522	71,376	83,002	96,522	97,581	98,640	98,796	17%
Annual % Change	7%	0%	-10%	-7%	7%	16%	16%	1%	1%	0%	
Statewide	418,100	428,360	525,450	522,238	511,777	504,741	513,539	530,091	560,362	581,674	100%
Annual % Change	10%	2%	23%	-1%	-2%	-1%	2%	3%	6%	4%	

Note: District numbers may not add to statewide totals due to rounding.

Exhibit 2-2: Urban Area Freeway Congested Directional Miles by District 1998-2007

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Percent of Statewide 2007
District 3	98	83	95	121	112	124	121	145	132	143	7%
Annual % Change	28%	-15%	14%	28%	-8%	11%	-2%	20%	-9%	9%	
District 4	327	338	390	379	369	339	394	411	402	457	21%
Annual % Change	7%	3%	15%	-3%	-3%	-8%	16%	4%	-2%	14%	
District 5	19	16	41	38	42	53	53	53	56	58	3%
Annual % Change	33%	-17%	159%	-6%	9%	28%	0%	0%	5%	4%	
District 6	2	13	9	20	16	23	38	22	28	28	1%
Annual % Change	-49%	645%	-27%	113%	-17%	42%	65%	-42%	26%	0%	
District 7	566	566	617	664	620	648	648	669	633	651	30%
Annual % Change	1%	0%	9%	8%	-7%	5%	0%	3%	-5%	3%	
District 8	90	99	168	106	121	97	98	130	154	223	10%
Annual % Change	-3%	10%	71%	-37%	14%	-20%	1%	33%	18%	45%	
District 10	19	27	20	51	51	46	40	52	48	43	2%
Annual % Change		39%	-27%	159%	1%	-9%	-14%	31%	-7%	-12%	
District 11	125	172	289	273	269	326	334	292	302	306	14%
Annual % Change	22%	38%	69%	-6%	-1%	21%	3%	-13%	4%	1%	
District 12	204	295	269	254	233	212	190	254	260	244	11%
Annual % Change	15%	45%	-9%	-6%	-8%	-9%	-10%	34%	2%	-6%	
Statewide	1,449	1,608	1,898	1,905	1,832	1,867	1,916	2,028	2,014	2,153	100%
Annual % Change	7%	11%	18%	0%	-4%	2%	3%	6%	-1%	7%	

Note: District numbers may not add to statewide totals due to rounding.

Exhibit 2-3: Urban Area Freeway Total Directional Miles by District 1998-2007

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Percent of Statewide 2007
District 3	319	319	317	317	320	346	346	349	349	349	8%
Annual % Change	0%	0%	-1%	0%	1%	8%	0%	1%	0%	0%	
District 4	1,075	1,075	1,074	1,074	1,074	1,078	1,077	1,086	1,086	1,086	23%
Annual % Change	1%	0%	0%	0%	0%	0%	0%	1%	1%	0%	
District 5	226	226	226	226	226	214	217	215	215	215	5%
Annual % Change	0%	0%	0%	0%	0%	-5%	1%	0%	-1%	0%	
District 6	241	255	260	268	268	290	290	293	293	293	6%
Annual % Change	1%	6%	2%	3%	0%	8%	0%	1%	1%	0%	
District 7	1,061	1,061	1,065	1,065	1,075	1,087	1,088	1,091	1,091	1,091	23%
Annual % Change	0%	0%	0%	0%	1%	1%	0%	0%	0%	0%	
District 8	542	542	542	555	572	572	572	573	573	573	12%
Annual % Change	3%	0%	0%	2%	3%	0%	0%	0%	0%	0%	
District 10	178	178	178	182	185	184	184	184	184	184	4%
Annual % Change	0%	0%	0%	2%	2%	-1%	0%	0%	0%	0%	
District 11	458	458	464	464	467	482	483	484	484	484	10%
Annual % Change	1%	0%	1%	0%	1%	3%	0%	0%	0%	0%	
District 12	357	376	376	376	376	371	371	374	374	374	8%
Annual % Change	5%	5%	0%	0%	0%	-1%	0%	1%	1%	0%	
Statewide	4,457	4,489	4,503	4,527	4,563	4,624	4,628	4,649	4,649	4,649	100%
Annual % Change	1%	1%	0%	1%	1%	1%	0%	1%	0%	0%	

Notes: District numbers may not add to statewide totals due to rounding.

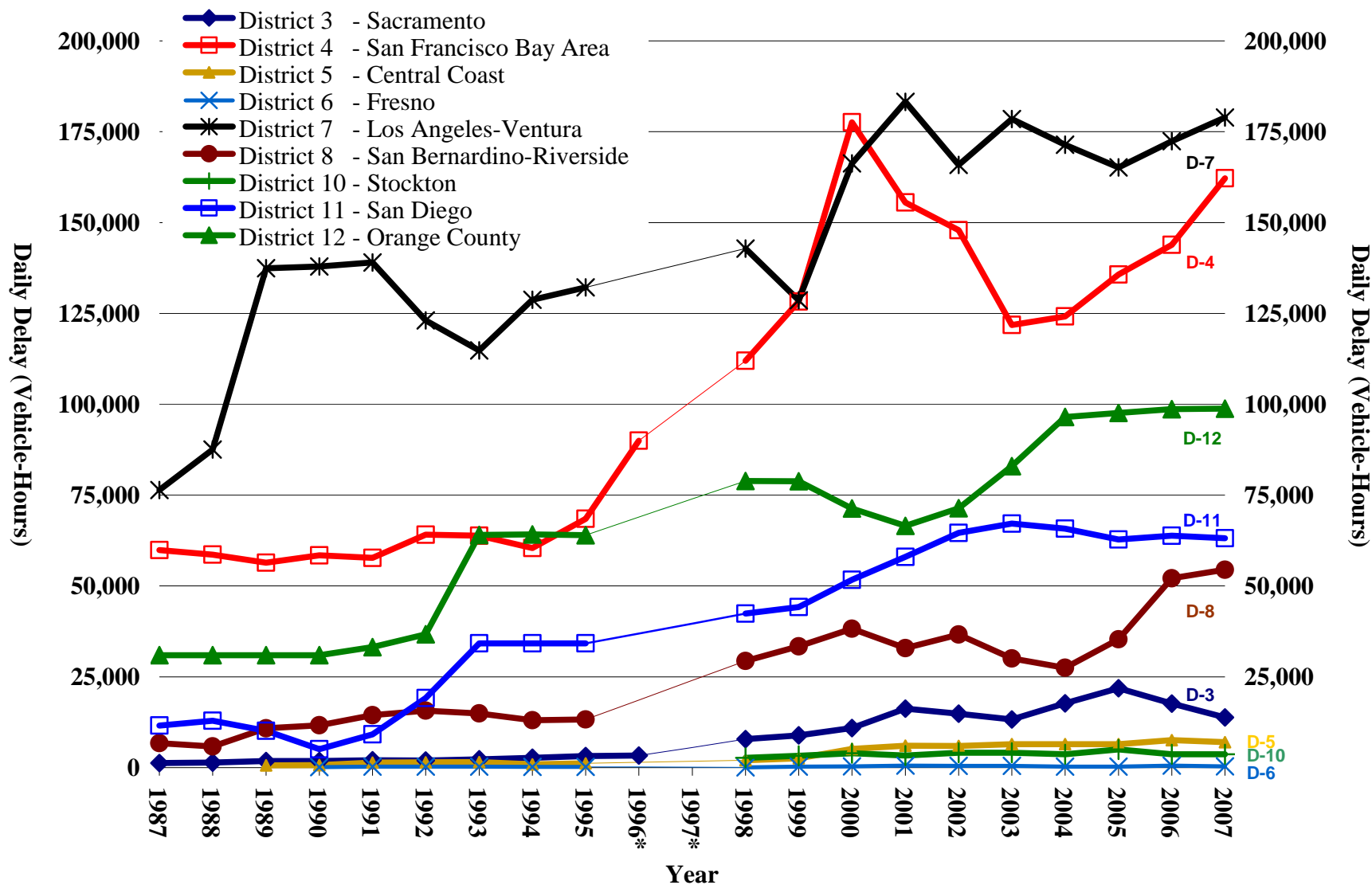
Total Directional Miles (TDM) through 2002 is from the TASAS-Legacy database. Year 2003 on is from the “current” TASAS-TSN database.

Exhibit 2-4: Congested Directional Miles to Total Directional Miles by District 1998-2007

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
District 3	31%	26%	30%	38%	35%	36%	35%	41%	38%	41%
District 4	30%	31%	36%	35%	34%	31%	37%	38%	37%	42%
District 5	8%	7%	18%	17%	18%	25%	25%	25%	26%	27%
District 6	1%	5%	4%	7%	6%	8%	13%	8%	10%	9%
District 7	53%	53%	58%	62%	58%	60%	60%	61%	58%	60%
District 8	17%	18%	31%	19%	21%	17%	17%	23%	27%	39%
District 10	11%	15%	11%	28%	27%	25%	22%	28%	26%	23%
District 11	27%	38%	62%	59%	58%	67%	69%	60%	62%	63%
District 12	57%	79%	71%	68%	62%	57%	51%	68%	69%	65%
Statewide	33%	36%	42%	42%	40%	40%	41%	44%	43%	46%

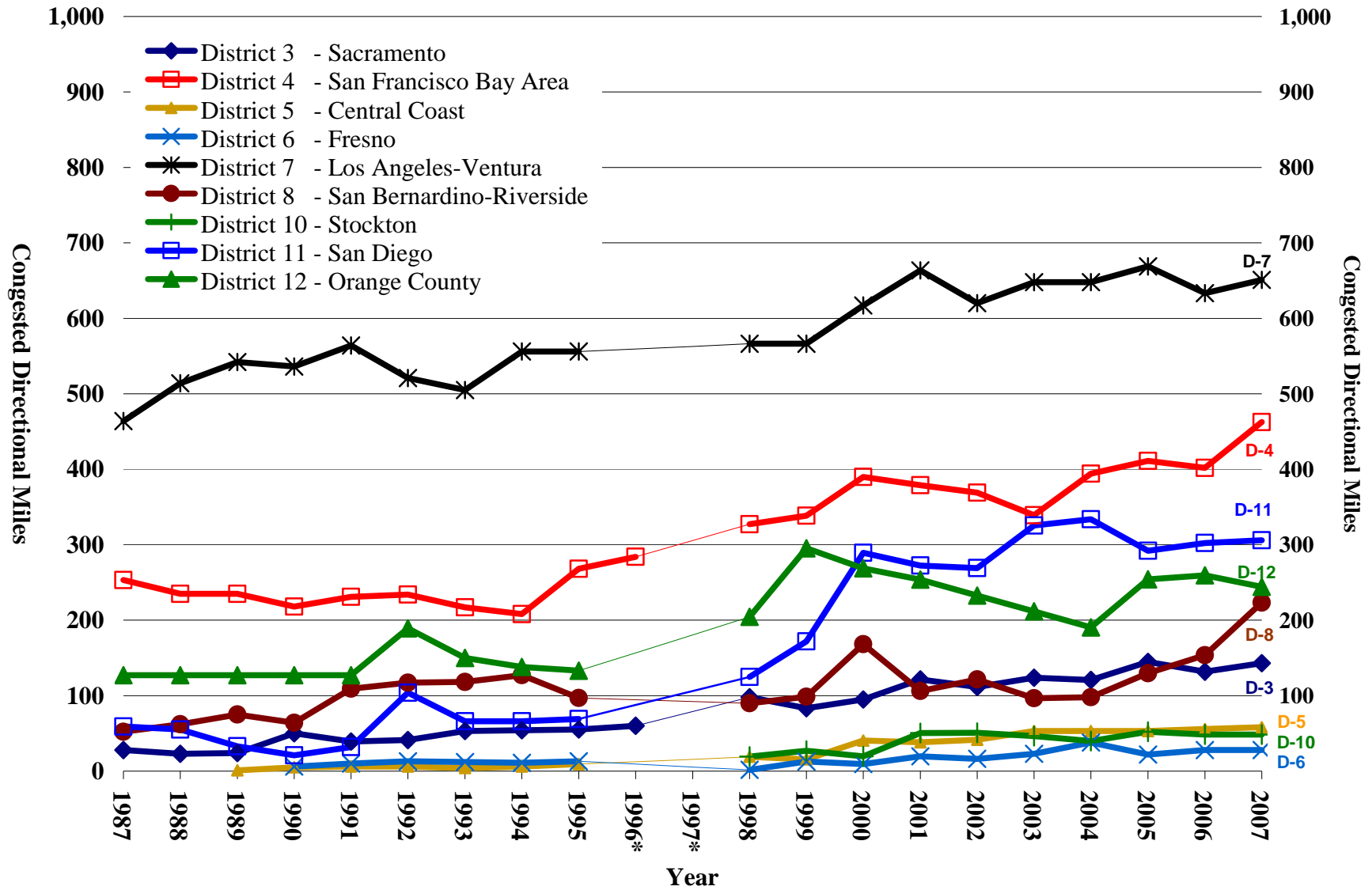
Note: District percentages may not add to statewide percentages due to rounding.

Exhibit 2-5: Daily Vehicle-Hours of Delay Trends by District 1987-2007



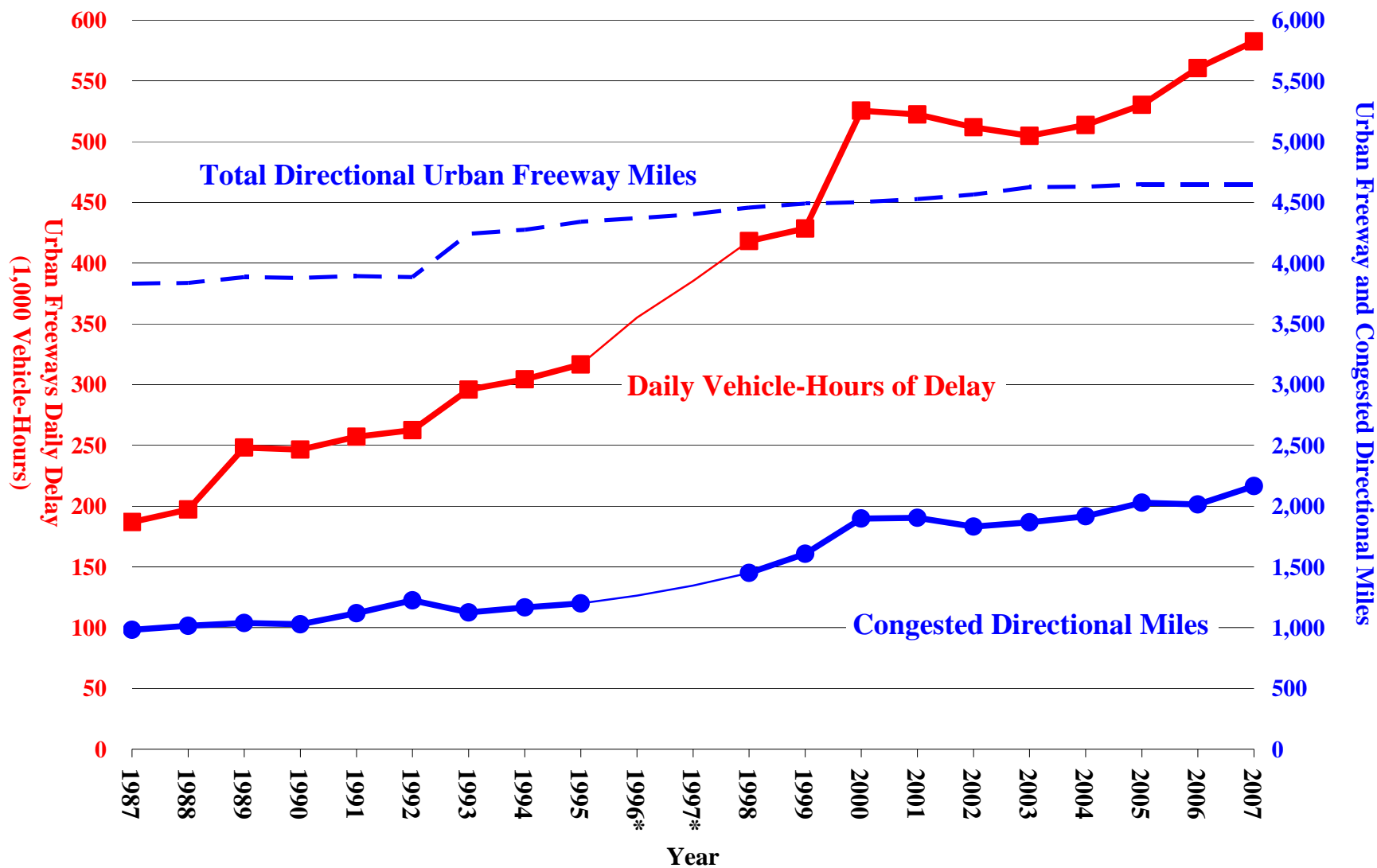
* No statewide HICOMP reporting was done in 1996 and 1997. Districts 3 and 4 produced district reports in 1996.

Exhibit 2-6: Congested Directional Mile Trends by District 1987-2007



* No statewide HICOMP reporting was done in 1996 and 1997. Districts 3 and 4 produced district reports in 1996.

Exhibit 2-7: Statewide Vehicle-Hours of Delay and Congested Directional Miles 1987-2007



* No statewide HICOMP reporting was done in 1996 and 1997.

Exhibit 2-8: Daily Delay and Congested Directional Miles County Rankings 2007 vs. 2006

Rank		Caltrans District	County	Daily Vehicle-Hours of Delay		Congested Directional Miles	
2007	2006			2007	2006	2007	2006
1	1	7	Los Angeles	178,249.5	171,707.1	639.5	621.3
2	2	12	Orange	98,796.0	98,640.2	244.3	259.5
3	4	4	Alameda	63,900.0	55,500.0	136.3	120.8
4	3	11	San Diego	63,098.6	63,833.1	306.1	302.3
5	5	8	Riverside	38,019.4	37,279.3	126.4	85.0
6	6	4	Santa Clara	28,300.0	25,800.0	92.9	88.0
7	7	4	Contra Costa	26,600.0	24,200.0	84.9	68.9
8	9	8	San Bernardino	16,436.2	14,821.2	97.0	68.6
9	8	3	Sacramento	13,281.0	15,121.6	127.9	117.6
10	11	4	Marin	11,200.0	9,400.0	20.7	21.7
11	10	4	San Francisco	10,600.0	10,900.0	30.8	24.7
12	12	4	San Mateo	10,500.0	7,700.0	43.2	43.0
13	12	4	Sonoma	7,900.0	7,700.0	35.8	22.8
14	14	5	Santa Cruz	4,030.0	4,030.0	17.9	17.9
15	15	10	San Joaquin	3,264.3	3,529.0	36.1	41.8
16	17	4	Solano	2,700.0	2,700.0	11.9	12.0
17	20	5	Monterey	1,638.5	620.1	9.4	6.3
18	16	5	Santa Barbara	1,338.2	2,887.7	25.8	26.7
19	19	7	Ventura	688.2	692.0	11.5	12.0
20	18	3	Placer	453.0	2,420.0	9.4	7.2
21	21	6	Fresno	375.1	522.7	27.8	26.5
22	22	10	Stanislaus	179.7	180.0	6.5	6.5
23	26	3	Yolo	81.0	2.8	2.5	2.1
24	25	5	San Luis Obispo	33.3	33.3	4.9	4.9
25	23	3	El Dorado	12.0	103.4	3.3	4.9
26	24	6	Kern	0.0	38.6	0.0	1.4
Statewide				581,674	560,362	2,153	2,014

Note: County numbers may not add to statewide totals due to rounding.

Exhibit 2-9: 2007 Excess Fuel Consumption, Travel Cost, and Emissions Due to Congestion

District Indicator	3	4	5	6	7	8	10	11	12	Total
Total Daily Delay (Vehicle-Hours)	27,654	323,400	14,080	750	357,875	108,911	6,888	126,197	197,592	1,163,348
Average Vehicle Occupancy ⁽¹⁾	1.00	1.10	1.00	1.10	1.10	1.10	1.10	1.00	1.10	
Estimated Daily Person-Hours of Delay ⁽¹⁾	27,654	355,740	14,080	825	393,663	119,802	7,577	126,197	217,351	1,262,890
Excess Fuel Consumed per Day (Gallons) ⁽²⁾	47,537	555,925	24,204	1,290	615,188	187,218	11,841	216,933	339,661	1,999,795
Total User Cost per Day (Dollars) ⁽³⁾	\$515,129	\$6,452,043	\$262,277	\$14,966	\$7,139,848	\$2,172,851	\$137,421	\$2,350,760	\$3,942,091	\$22,987,386
Total Emissions per Day (Tons) ⁽²⁾	14	162	7	0.4	179	54	3	63	99	582

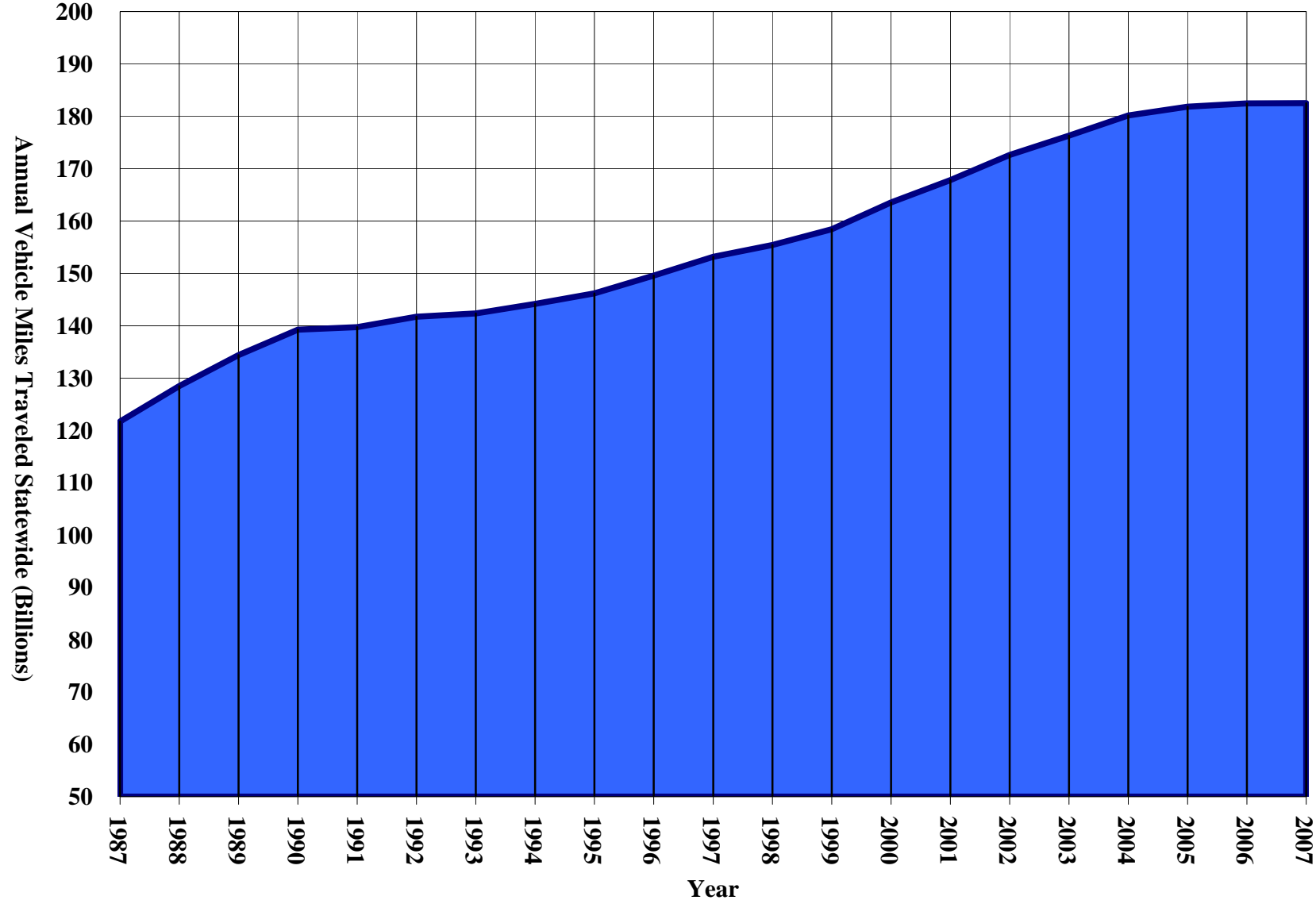
(1) Average Vehicle Occupancy (AVO) estimates are used to calculate the daily person-hours of delay (Total Daily Delay x AVO). The person-hours of daily delay estimates are then used to calculate the total user cost per day. AVOs used in the HICOMP are the "home-to-work" trip estimates from the 2000-2001 California Statewide Household Travel Survey (Caltrans, June 2002), the most recent data available. The next such report will be produced in 2010.

(2) Fuel Efficient Traffic Signal Management Evaluation (Institute of Transportation Studies): 1,000 vehicle-hours of delay results in 1,719 gallons of wasted fuel and 1/2 ton of emissions.

(3) Total user cost includes cost of travel time and cost of excess fuel. The average cost of travel time per person-hour of delay in 2007 is estimated to be \$13.58. This figure is based on the average auto and truck costs of travel from the California Lifecycle Benefit/Cost Analysis Model weighted by VMT and updated by the Gross Domestic Product Deflator. The cost of fuel is estimated at \$3.14 per gallon, the average monthly price (weighted by monthly VMT estimates from Caltrans) for regular unleaded gasoline as reported by the California State Automobile Association monthly gas survey for 2007.

(4) District numbers may not add to statewide totals due to rounding.

Exhibit 2-10: California State Highway Vehicle Miles Traveled 1987-2007



3. District and County Level Findings and Analysis

This chapter presents the 2007 findings by district. The results are presented in three formats:

(1) A district summary table presenting total district-wide delay and county sub-totals, (2) a chart showing the district trends over time for delay and congested miles, and (3) two maps showing the location and duration of freeway segments where congestion was measured. The first map shows congested locations for the morning peak commute period and the second map shows the results for the evening peak commute period.

3.1 District 3: Sacramento Area

Exhibit 3-1 summarizes weekday recurrent congestion in District 3 during 2007 compared to 2006. Exhibit 3-2 presents trends in DVHD and CDM for the district. Exhibits 3-3 and 3-4 are maps showing the location and duration of morning and evening peak-period congestion. The 2006 and 2007 data used in this compilation are based on fall floating vehicle data collection efforts. Prior to 1998, delay estimates were based on the spring and fall floating vehicle data.

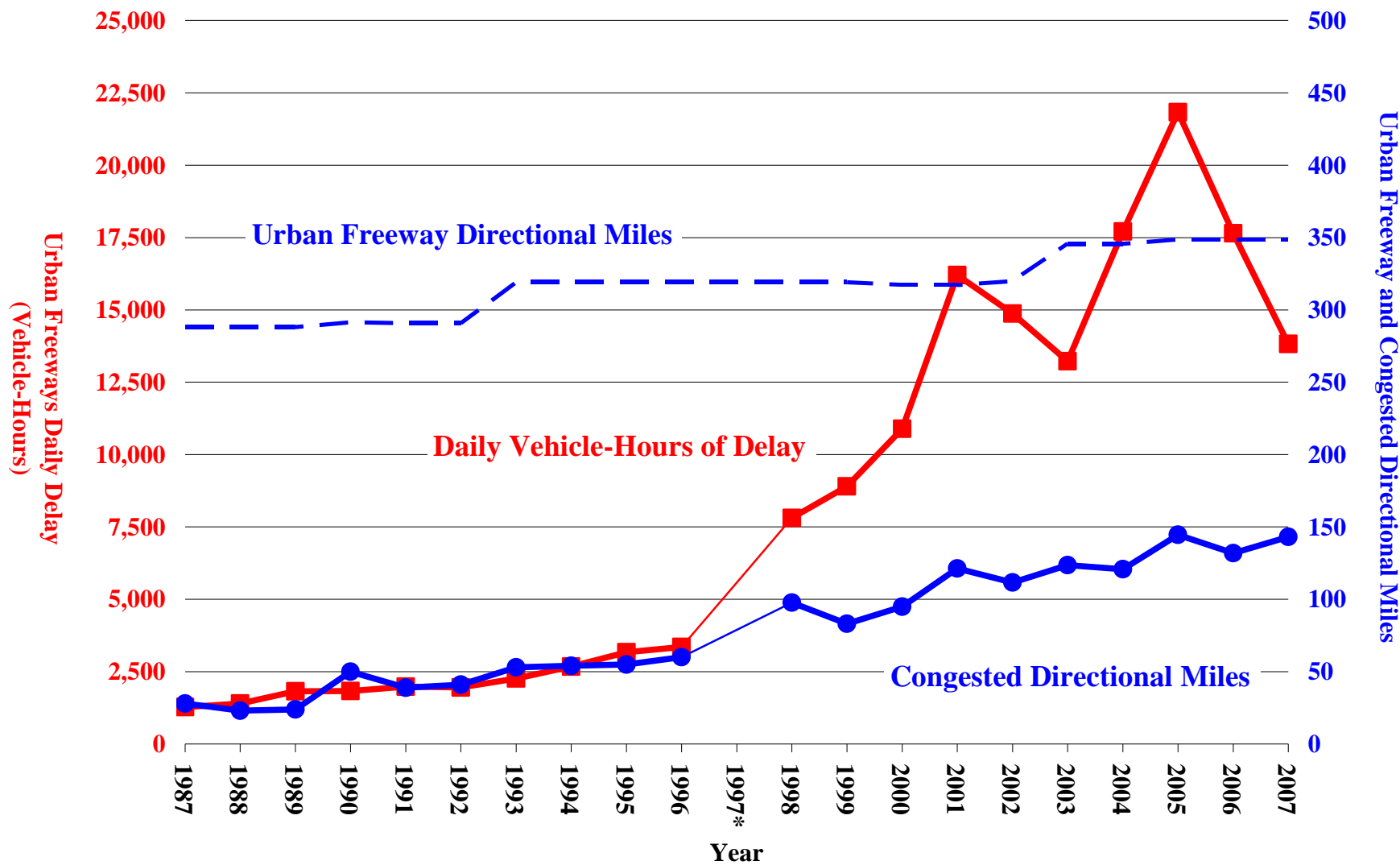
In 2007, the total DVHD was 13,827, compared to 17,648 reported for 2006 (a 22 percent decline). The CDM were 143 miles in 2007, a 9 percent increase since 2006, but nearly even with the 145 miles reported in 2005. A dramatic decrease in congestion occurred in the Sacramento metropolitan area, especially on State Route 50 (SR-50) and SR-99. Several factors contributed to this decrease:

- Four projects on SR-50 and SR-99 were completed in 2007 as part of the Go California Congestion Relief Program. These projects constructed auxiliary lanes on SR-50 and SR-99. Floating vehicle runs after construction show significant congestion relief.
- Local agencies completed several roadway construction projects south of SR-50 and east of SR-99 in 2007. These projects widened or made other operational improvements to Bradshaw Road, South Watt Avenue, Elk Grove-Florin Road, Bond Road, and Elk Grove Boulevard. These major arterials connect SR-99 with SR-50 and act as parallel routes.
- Construction of new ramp meters and activation of existing ramp meters during commute periods is a high priority in District 3. Four ramp meters were activated in 2007, prior to the floating vehicle runs.
- Fuel costs and changing modes of travel probably contributed to a reduction in congestion. This report does not attempt to quantify this factor.
- Changing commute patterns could also be responsible for a decline in congestion. Significant business and industrial growth occurred in the cities of Rancho Cordova and Roseville. The growing jobs market at these locations could change commute patterns away from SR-50, SR-99, and Interstate 80 (I-80) and onto local arterial roads.

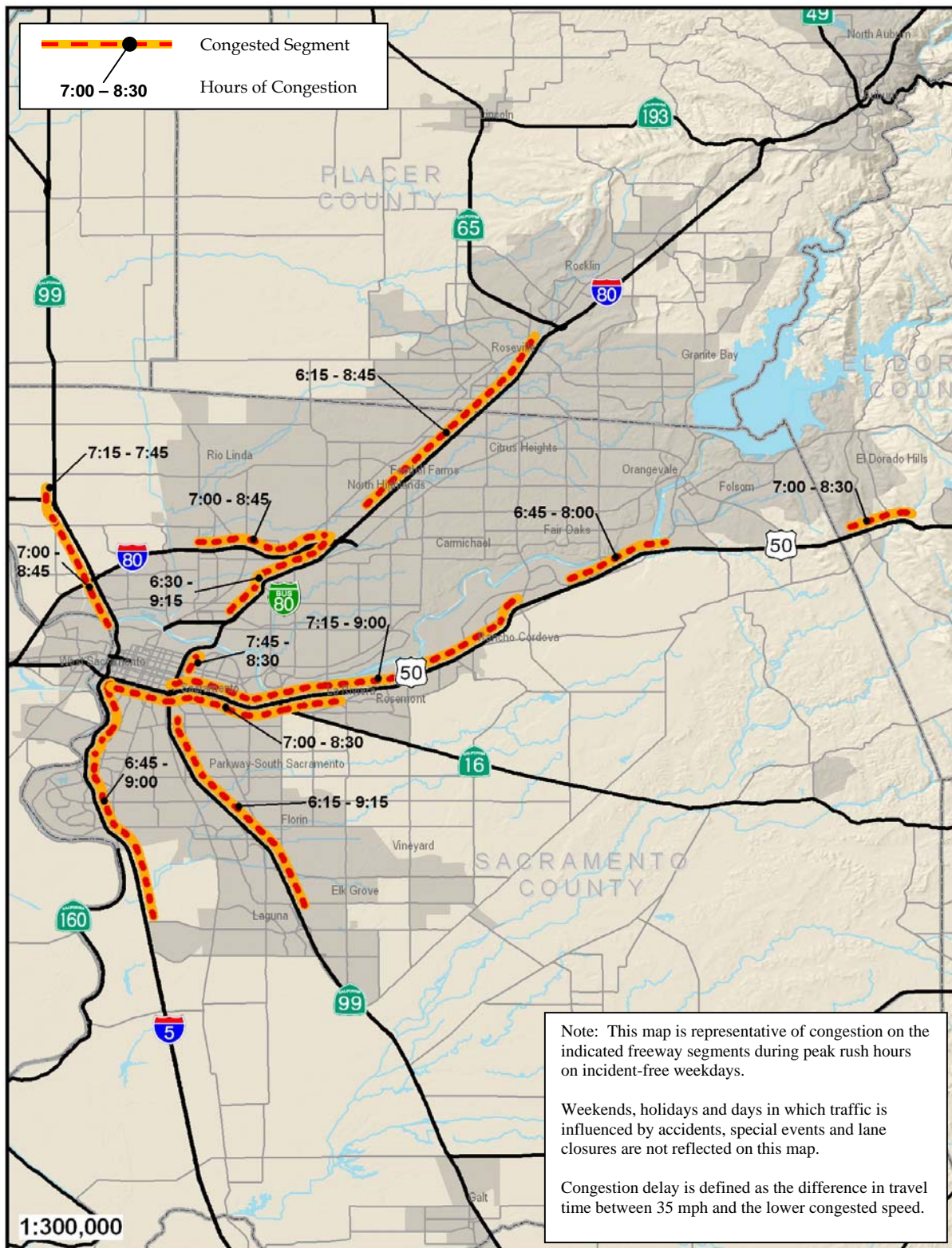
Exhibit 3-1: District 3 Highway Congestion Summary

District 3	2006	2007	Percent Change 2006-2007	Percent of Statewide 2007
Daily Vehicle-Hours of Delay	17,648	13,827	-22%	2%
El Dorado	103	12	-88%	
Placer	2,420	453	-81%	
Sacramento	15,122	13,281	-12%	
Yolo	3	81	2793%	
Congested Directional Miles	131.8	143.1	9%	7%
El Dorado	4.9	3.3	-33%	
Placer	7.2	9.4	31%	
Sacramento	117.6	127.9	9%	
Yolo	2.1	2.5	19%	
Total Urban Area Freeway Directional Miles	348.8	348.8		
Congested Miles/Total Urban Freeway Miles	38%	41%		

Exhibit 3-2: District 3 Congestion Trends 1987-2007



* No HICOMP reporting performed.



**EXHIBIT 3-3
DISTRICT 3
SACRAMENTO AREA
2007 MORNING CONGESTION MAP**

3.2 District 4: San Francisco Bay Area

Exhibit 3-5 summarizes weekday recurrent congestion in District 4 during 2007 compared to 2006. Exhibit 3-6 presents trends in DVHD and CDM for the district. Exhibits 3-7 and 3-8 are maps showing the location and duration of morning and evening peak-period congestion.

District 4 collects data in both the spring and fall seasons for the statewide HICOMP. District 4's most congested locations were collected using GPS-equipped floating vehicles during the spring and fall season of 2007 by consultants hired by the Department's regional partner, the Metropolitan Transportation Commission (MTC). The MTC's consultant, with the Department's guidance and review, develops delay estimates.

In 2007, the total DVHD was 161,700 compared to 143,900 reported for 2006 (a 12 percent increase). The CDM were 458 miles in 2007, a 14 percent increase from the 402 miles in 2006.

Of this, about 16,500 DVHD (about 10 percent of the region's total) occurred on portions of freeways that were not noticeably congested previously and not closely monitored since 2003. Congestion increased in every county in the region except for San Francisco and Napa Counties. There is recurrent congestion along 164 various freeway stretches each day. The lowest level of congestion recorded in the past eight years was in 2003 with 121,800 DVHD. The congestion level in 2007 is 33 percent higher than 2003 but still approximately 9 percent lower than year 2000 the year with the highest recorded delays (177,600 DVHD.)

The eastbound Eastshore Freeway I-80 in Alameda and Contra Costa Counties in the morning commute held its ranking as the most congested freeway location in the San Francisco Bay Area for the eighth consecutive year. The eastbound afternoon commute on I-580 in Alameda County on the Altamont Pass, from Dublin toward Tracy, was ranked the second worst commute in the Bay Area for the third straight year. The reverse westbound commute along this stretch, during the morning peak, was ranked fourth, behind southbound morning commute on U.S. Highway 101 (US-101) in Marin County.

The most congested counties, Alameda (63,900 DVHD), Santa Clara (28,300 DVHD), and Contra Costa (26,600 DVHD) account for 73 percent of 2007's total regional daily freeway congestion. San Francisco County, with a small decrease of 300 DVHD, was the only county to have experienced a decrease in overall county congestion. San Mateo County, with a 36 percent increase in delay had the largest congestion growth percentage.

Alameda County

Six of the top ten most congested commutes in the Bay Area are in or partially in Alameda County. Westbound morning commute on I-80, between SR-4 in Contra Costa County and the San Francisco-Oakland Bay Bridge toll plaza, continued to be the most congested freeway corridor in the Bay Area. Two other of the Bay Area's top ten most congested locations, ranked second and fourth, are on I-580 in the cities of Dublin, Pleasanton, and Tracy. The eighth most congested location is the southbound morning commute on I-880 from south of Marina Boulevard to Industrial

Parkway that experienced an increase of 2,810 DVHD. This segment is a new entry to the Bay Area's 2007 top ten list.

In general, northbound I-880 from Fremont to Oakland showed increases of congestion at several locations. Westbound I-580 in the morning commute from Center Street to I-238 in Castro Valley increased by about 910 DVHD since last monitored in 2003. There is a capacity increasing project, currently under construction, on I-238 in Castro Valley that will be completed in year 2010.

Contra Costa County

In Contra Costa County, there was a 10 percent total increase in congestion, amounting to 2,400 DVHD, from 2006 to 2007. Two of the top ten most congested locations in the Bay Area are entirely in or partially in Contra Costa County. The Bay Area's top ranking most congested commute is the morning peak westbound I-80 starting from SR-4 in Contra Costa County to San Francisco-Oakland Bay Bridge toll plaza. Also in the Bay Area's top ten is westbound SR-4 morning commute from A Street to SR-242.

Eastbound SR-4 evening congestion, from Solano Way to Port Chicago Highway, increased by 560 DVHD but the section between Bailey Road and G Street decreased by 660 DVHD resulting in no major overall change in this area. Overall delays on southbound I-680, from Contra Costa Boulevard to SR-24, increased by about 2,000 DVHD during the morning commute period. Northbound I-680 during the evening commute from Concord Avenue to Benicia-Martinez Bridge decreased by about 1,270 DVHD due to completion of the new Benicia-Martinez Bridge and new toll plaza in August, 2007.

Marin County

Marin County, with an increased congestion of 1,800 DVHD between 2006 and 2007, had the second largest percentage increase (19 percent) among the nine Bay Area counties. The majority of this increase in congestion (about 1,470 DVHD) occurred on southbound US-101 in the morning commute from Rowland Avenue to Lincoln Avenue. Currently, this segment of US-101 is ranked as the third most congested commute in the nine county Bay Area, up by one from fourth spot in 2006. For the first time ever, the overall congestion in Marin County has surpassed that in San Francisco County. There is a project, currently under construction, which will extend and close an existing gap between two existing carpool lanes on US-101. Due to be completed in early 2009, this project is expected to reduce the congestion along this corridor.

Napa County

There was no significant freeway congestion in this county.

San Francisco County

There was very little change in overall traffic congestion levels in San Francisco County. The fifth and ninth most congested locations in the Bay Area are entirely or partially in San Francisco County. These are the commutes on northbound US-101, from Alemany Boulevard to I-80, and on eastbound I-80, from US-101 to 5th Street. San Francisco County shared with Alameda County the ninth most congested location, eastbound I-80, including Bryant Street/5th Street and from west of Treasure Island to east of Powell Street in Alameda County.

San Mateo County

Overall year 2007 delays in San Mateo County increased by about 2,800 DVHD (36 plus percent) compared to 2006. The majority of this increase occurred at two locations: southbound US-101 in the morning commute from 3rd Avenue to south of San Francisco International Airport and the reverse northbound direction in the afternoon from Whipple Avenue to Peninsula Avenue. There is an on going project to add auxiliary lanes and modify an interchange that should provide some relief once completed. It is expected that these projects will be completed in March 2011.

Northbound US-101 in the morning commute from Willow Road to 3rd Avenue decreased by about 1,360 DVHD since it was last monitored in 2003. The decrease was due to the completion of auxiliary lanes built from Marsh Road to Ralston Avenue. In addition, activation of ramp metering January 2007 on southbound US-101 in the morning commute from Marsh Road to Poplar Avenue resulted in a decrease of about 600 DVHD.

Santa Clara County

The overall daily freeway congestion in Santa Clara County increased by about 10 percent, or 2,500 DVHD, between 2006 and 2007. This increased delay was observed mostly in areas that were not closely monitored since 2003. Northbound I-880 afternoon commute, from Montague Expressway to SR-237 is no longer congested. The reduction of about 1,480 DVHD is credited to the I-880/SR-237 and Dixon Landing Road interchange modification projects that provided additional capacity between SR-237 and Dixon Landing Road and ramp metering on the eastbound SR-237 to northbound I-880 connector-ramp.

Southbound US-101 afternoon commute, from south of Rengstorff Avenue to Willow Road (SR-114), decreased by 810 DVHD due to activation of the ramp metering system between Hillsdale Boulevard in San Mateo County and University Avenue in January 2007. Delays in southbound US-101 afternoon commute, from Great America Parkway to North 13th Street, increased by about 780 DVHD in spite of the completion of SR-85/US-101 interchange modification project in May 2006. Moving up from the 14th most congested corridor in the Bay Area in 2006, this location is new to the Bay Area's top ten list, holding the tenth most congested commute for the nine county region in 2007. Congestion in the northbound direction of US-101, however, decreased by about 670 DVHD, during the afternoon, due to the completion of the same project.

Solano County

Congestion in Solano County remained essentially the same between year 2006 and 2007. During the morning commute period, westbound SR-37 congestion near Mare Island, increased by about 460 DVHD since last monitored in 2003. By contrast, northbound I-680, from south of Cordelia, is no longer congested during the evening peak, having eliminated 620 DVHD observed in 2003. The reduction in congestion is attributed to connector-ramp improvements at the Cordelia junction and the opening of the new Benicia-Martinez Bridge in August 2007.

Sonoma County

Countywide daily traffic congestion in Sonoma County increased marginally (up 3 percent or 200 DVHD) in 2007 as compared to 2006. Afternoon congestion on eastbound SR-37 at the intersection of SR-121 increased by about 410 DVHD since last monitored in 2003.

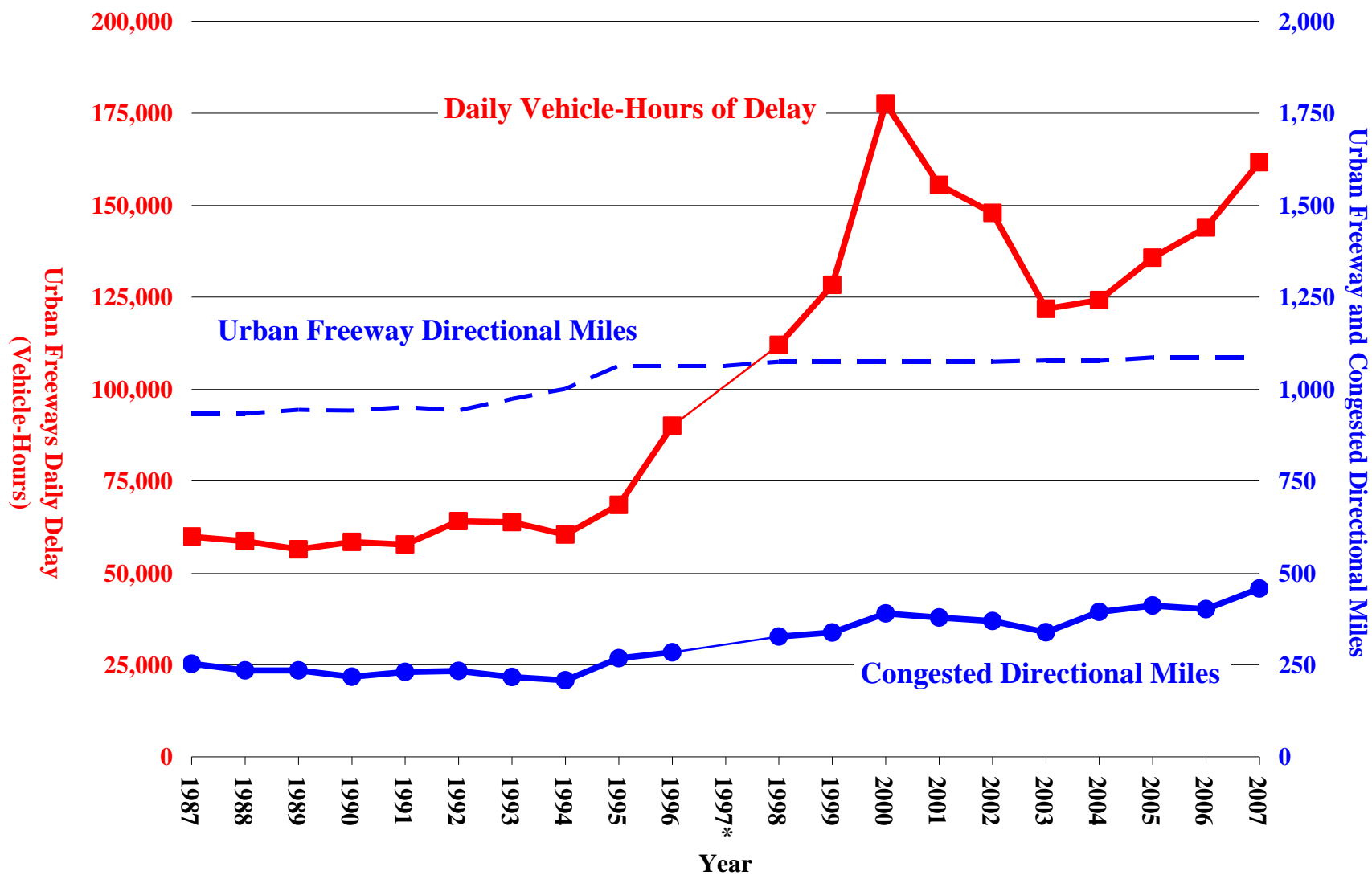
Congestion on southbound US-101, from River Road to 5th Street, decreased by about 550 DVHD during the afternoon commute period. This may be attributed to traffic diverting to other routes, possibly in order to avoid construction activities along US-101.

Exhibit 3-5: District 4 Highway Congestion Summary

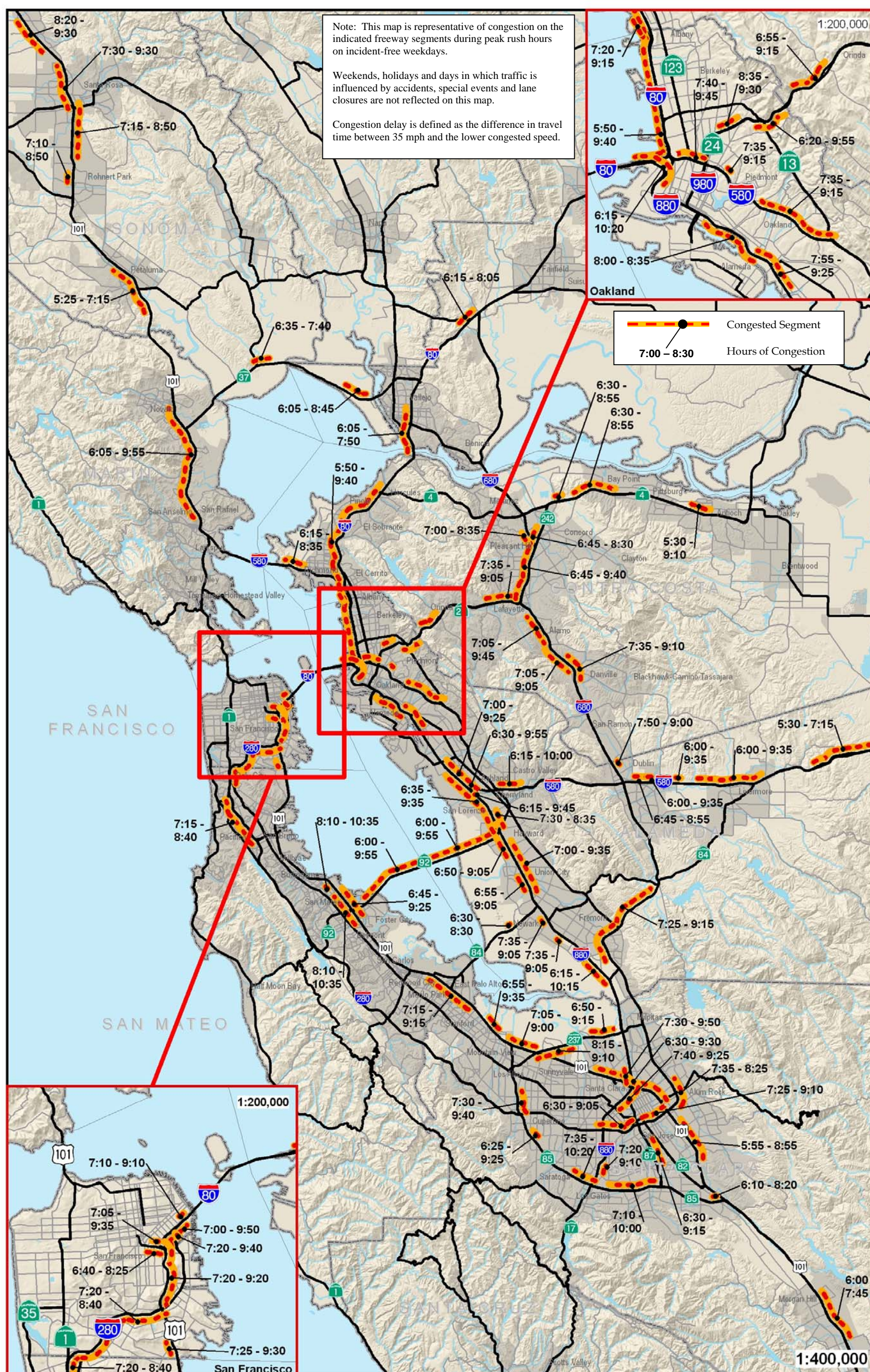
District 4	2006	2007	Percent Change 2006-2007	Percent of Statewide 2007
Daily Vehicle-Hours of Delay	143,900	161,700	12%	28%
Alameda	55,500	63,900	15%	
Contra Costa	24,200	26,600	10%	
Marin	9,400	11,200	19%	
San Francisco	10,900	10,600	-3%	
San Mateo	7,700	10,500	36%	
Santa Clara	25,800	28,300	10%	
Solano	2,700	2,700	0%	
Sonoma	7,700	7,900	3%	
Congested Directional Miles	401.8	456.6	14%	21%
Alameda	120.8	136.3	13%	
Contra Costa	68.9	84.9	23%	
Marin	21.7	20.7	-5%	
San Francisco	24.7	30.8	25%	
San Mateo	43.0	43.2	1%	
Santa Clara	88.0	92.9	6%	
Solano	12.0	11.9	-1%	
Sonoma	22.8	35.8	57%	
Total Urban Area Freeway Directional Miles	1,085.8	1,085.8		
Congested Miles/Total Urban Freeway Miles	37%	42%		

Note: County numbers may not sum to district totals due to rounding.

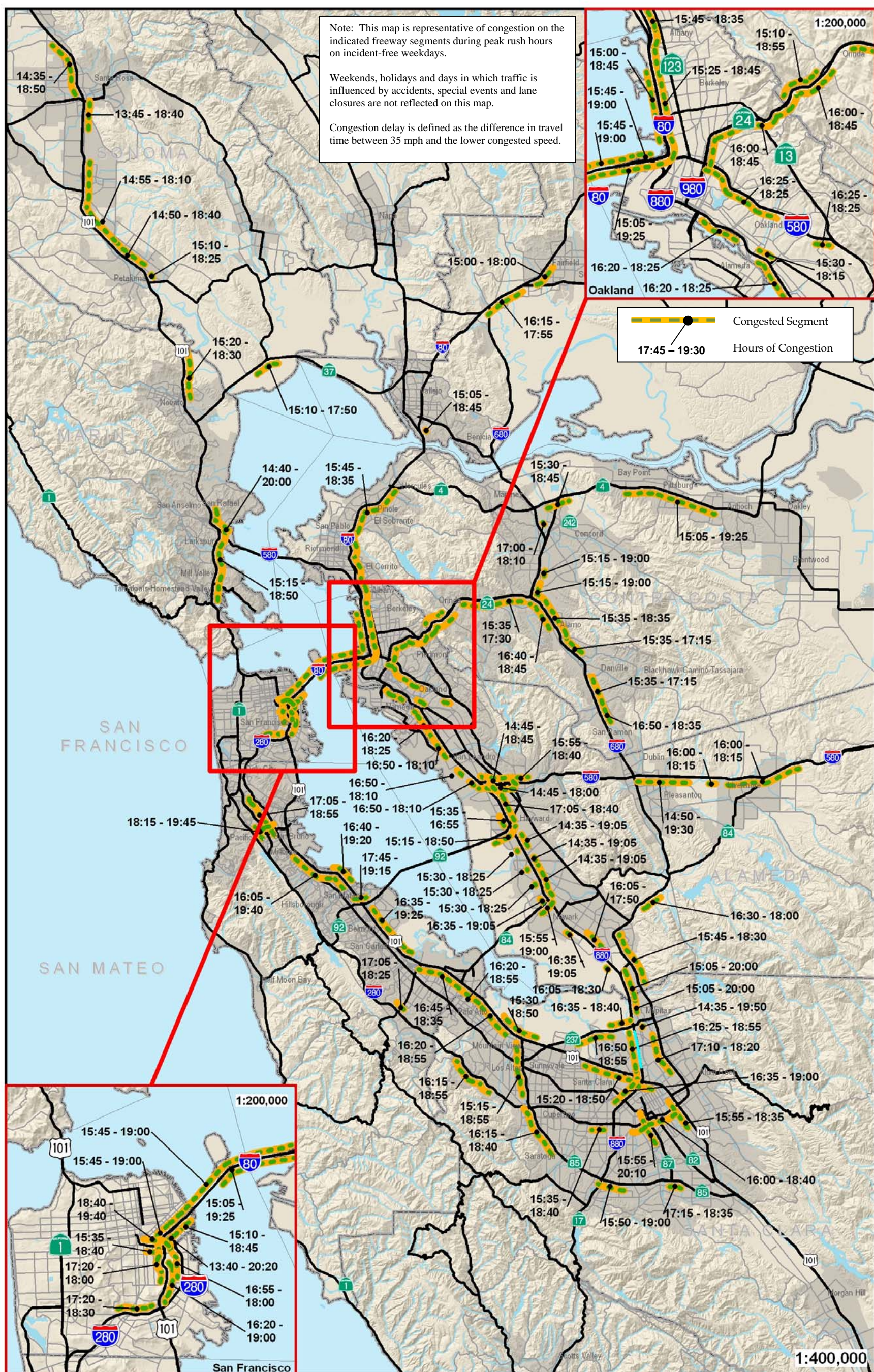
Exhibit 3-6: District 4 Congestion Trends 1987-2007



* No HICOMP reporting performed.



**EXHIBIT 3-7
DISTRICT 4
SAN FRANCISCO BAY AREA
2007 MORNING CONGESTION MAP**



**EXHIBIT 3-8
DISTRICT 4
SAN FRANCISCO BAY AREA
2007 EVENING CONGESTION MAP**

3.3 *District 5: Central Coast Area*

Exhibit 3-9 summarizes weekday recurrent congestion in District 5 during 2007 compared to 2006. Exhibit 3-10 presents trends in DVHD and CDM for the district. Exhibits 3-11 and 3-12 are maps showing the location and duration of morning and evening peak-period congestion.

DVHD declined 7 percent from 7,571 hours in 2006 to 7,040 hours in 2007, but delays were still higher than the 6,253 hours estimated in 2005. Delay was estimated in 2005 because the district did not perform new floating vehicle runs. CDM grew slightly (4 percent) from 56 miles in 2006 to 58 miles in 2007.

Through downtown Santa Barbara, US-101 is a six-lane facility with some congestion. South of Santa Barbara, US-101 is a four-lane facility, so the majority of the congestion occurs between Carpinteria and the southern Santa Barbara city limits.

In San Luis Obispo County, speeds during the morning are starting to drop between 45 and 50 mph, but this has not reached the 35 mph criteria for congestion in HICOMP. Evening congestion is due primarily to the recreational nature of the corridor (for example, traffic from the Central Valley coming to the coast).

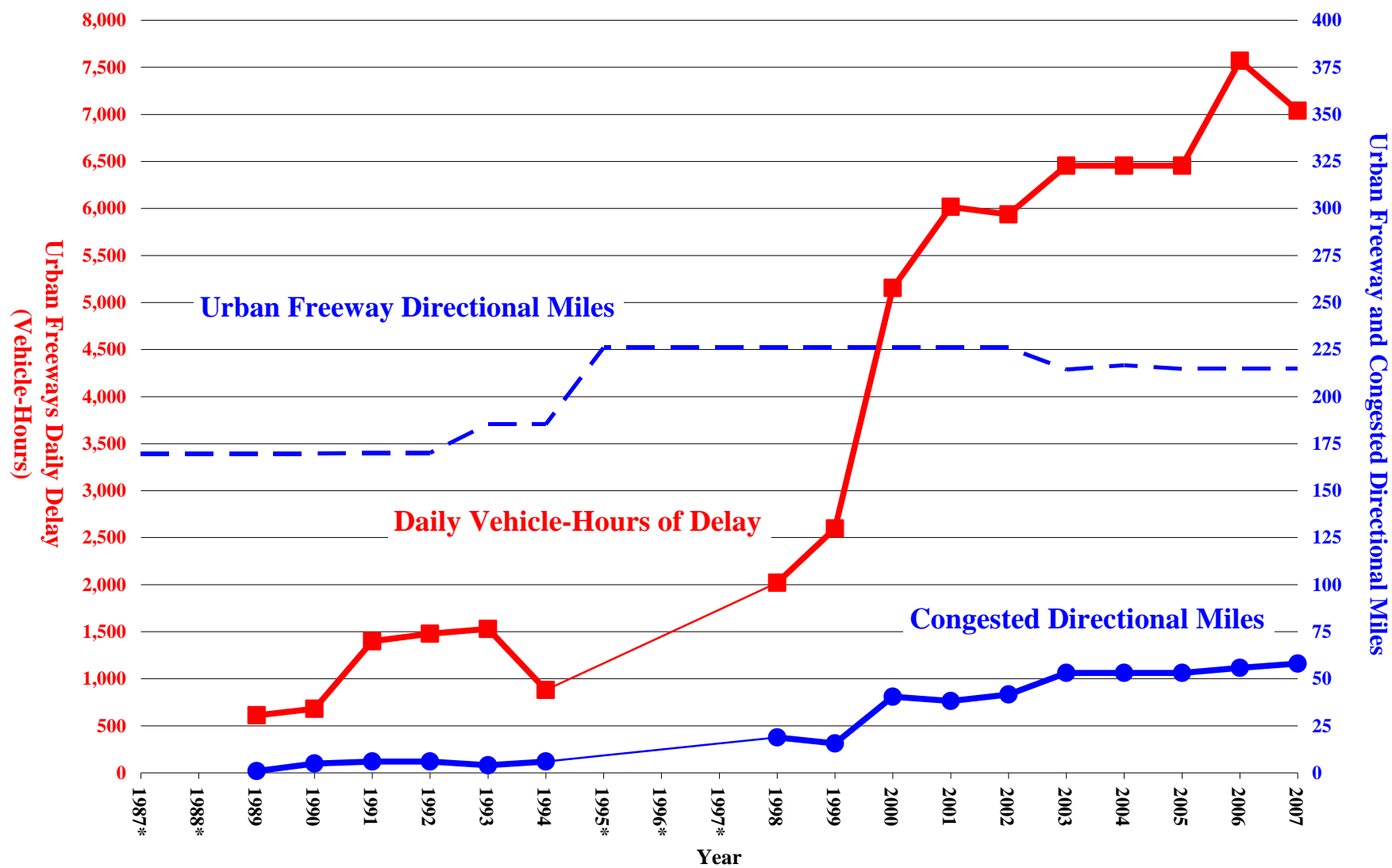
The Salinas Corridor will be added to the 2008 HICOMP Report.

Exhibit 3-9: District 5 Highway Congestion Summary

District 5	2006	2007	Percent Change 2006-2007	Percent of Statewide 2007
Daily Vehicle-Hours of Delay	7,571	7,040	-7%	1%
Monterey	620	1,638	164%	
San Luis Obispo	33	33	0%	
Santa Barbara	2,888	1,338	-54%	
Santa Cruz	4,030	4,030	0%	
Congested Directional Miles	55.8	58.0	4%	3%
Monterey	6.3	9.4	49%	
San Luis Obispo	4.9	4.9	0%	
Santa Barbara	26.7	25.8	-3%	
Santa Cruz	17.9	17.9	0%	
Total Urban Area Freeway Directional Miles	214.8	214.8		
Congested Miles/Total Urban Freeway Miles	26%	27%		

Note: County numbers may not sum to district totals due to rounding.

Exhibit 3-10: District 5 Congestion Trends 1989-2007



* No HICOMP reporting performed.

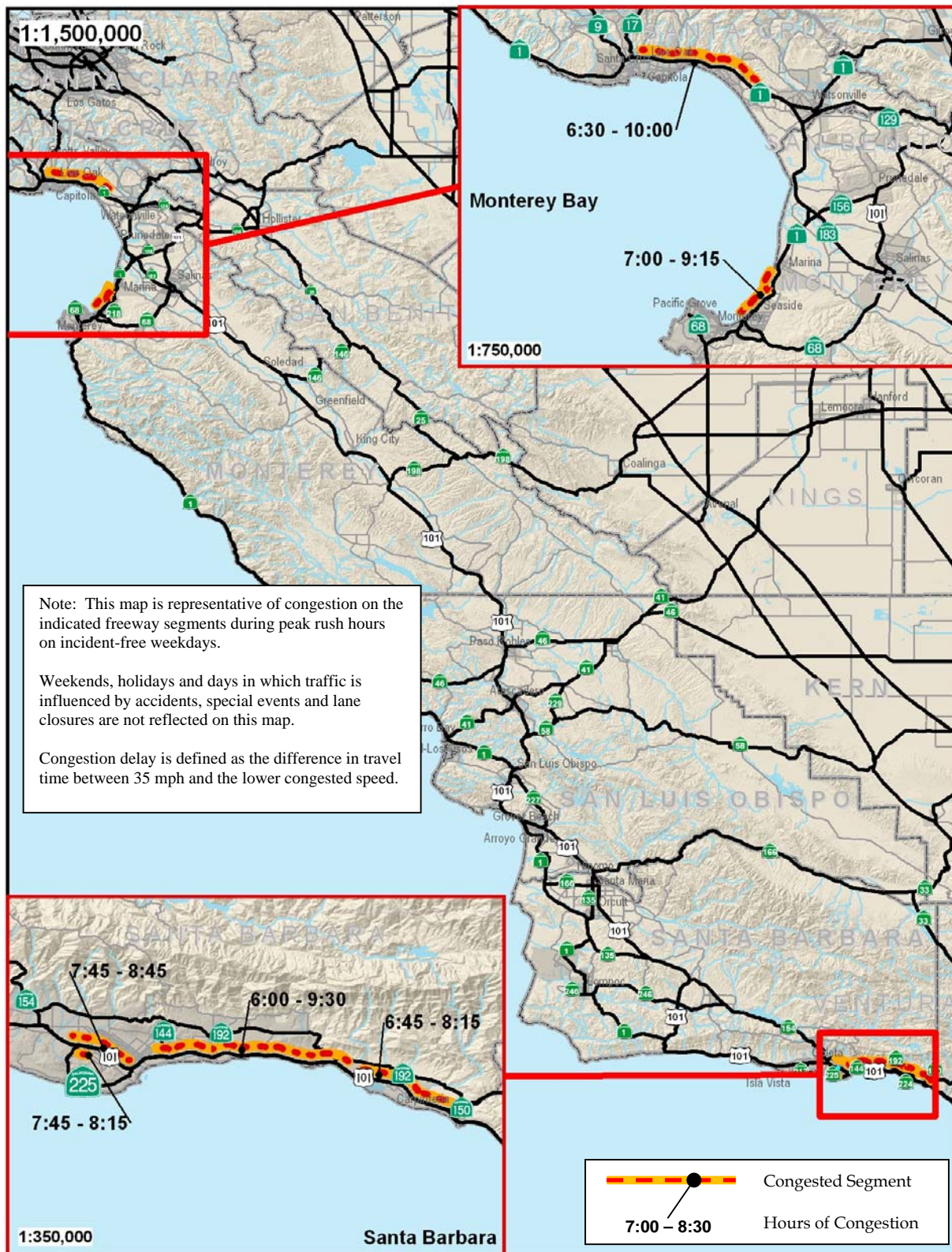


EXHIBIT 3-11
DISTRICT 5
CENTRAL COAST AREA
2007 MORNING CONGESTION MAP

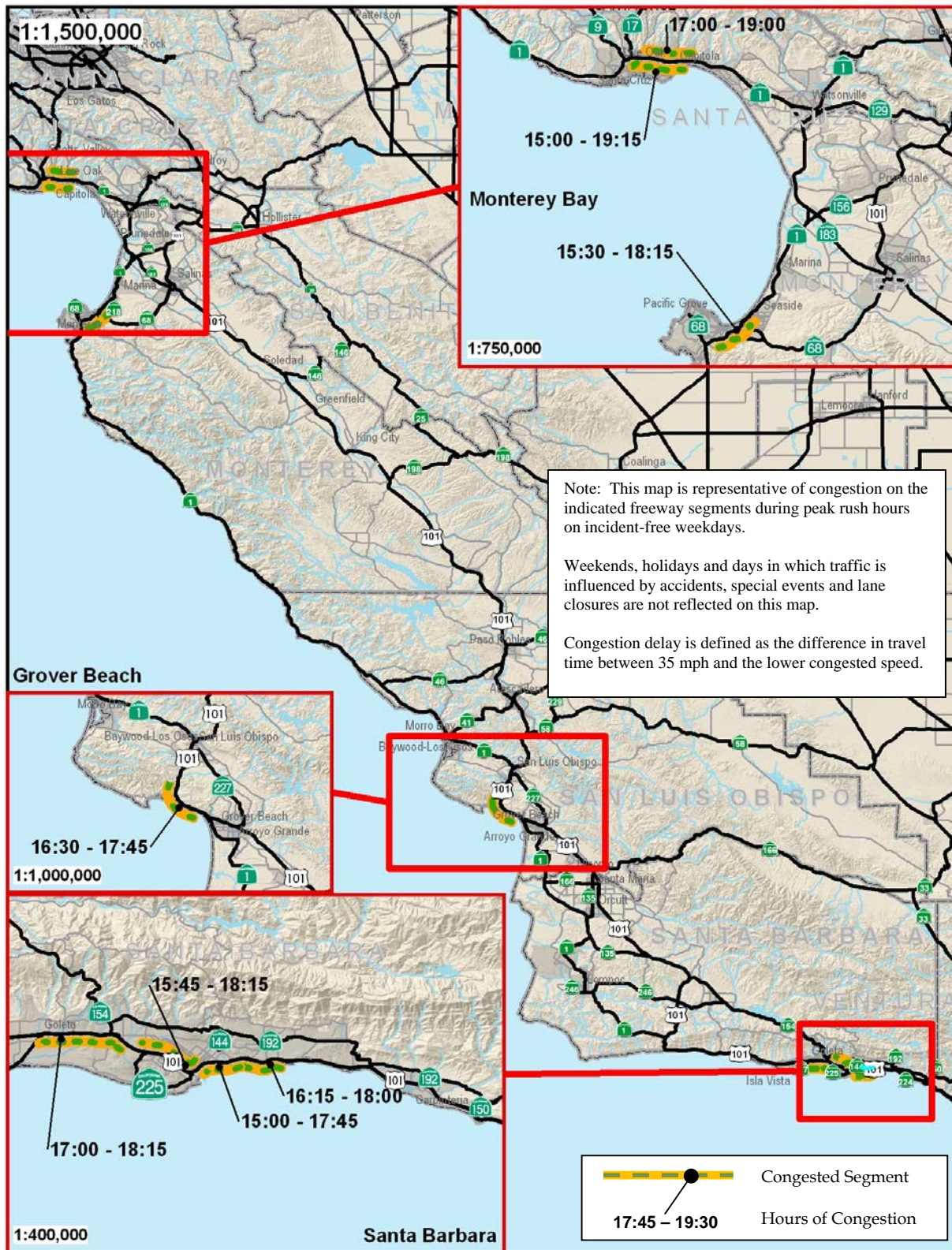


EXHIBIT 3-12
DISTRICT 5
CENTRAL COAST AREA
2007 EVENING CONGESTION MAP

3.4 District 6: Fresno Area

Exhibit 3-13 summarizes weekday recurrent congestion in District 6 during 2007 compared to 2006. Exhibit 3-14 presents trends in DVHD and CDM for the district. Exhibits 3-15 and 3-16 are maps showing the location and duration of morning and evening peak-period congestion.

The 2007 data were collected using floating vehicles equipped with GPS. Unlike the 2006 report, the data for 2007 were collected in the spring and fall seasons.

In 2007, the total DVHD were 375 hours compared to 561 hours reported in 2006. CDM in 2007 were 27.8 miles, about the same as reported in 2006 (27.9 miles).

The congested segments were generally concentrated in the City of Fresno on SR-41 between downtown Fresno on the south end and Herndon Avenue on the north end, and on SR-99 between Fresno Street and Shaw Avenue. The congestion on northbound SR-99 near Shaw Avenue could be attributed to the existing lane drop. There were no congested segments recorded in 2007 for the Bakersfield area.

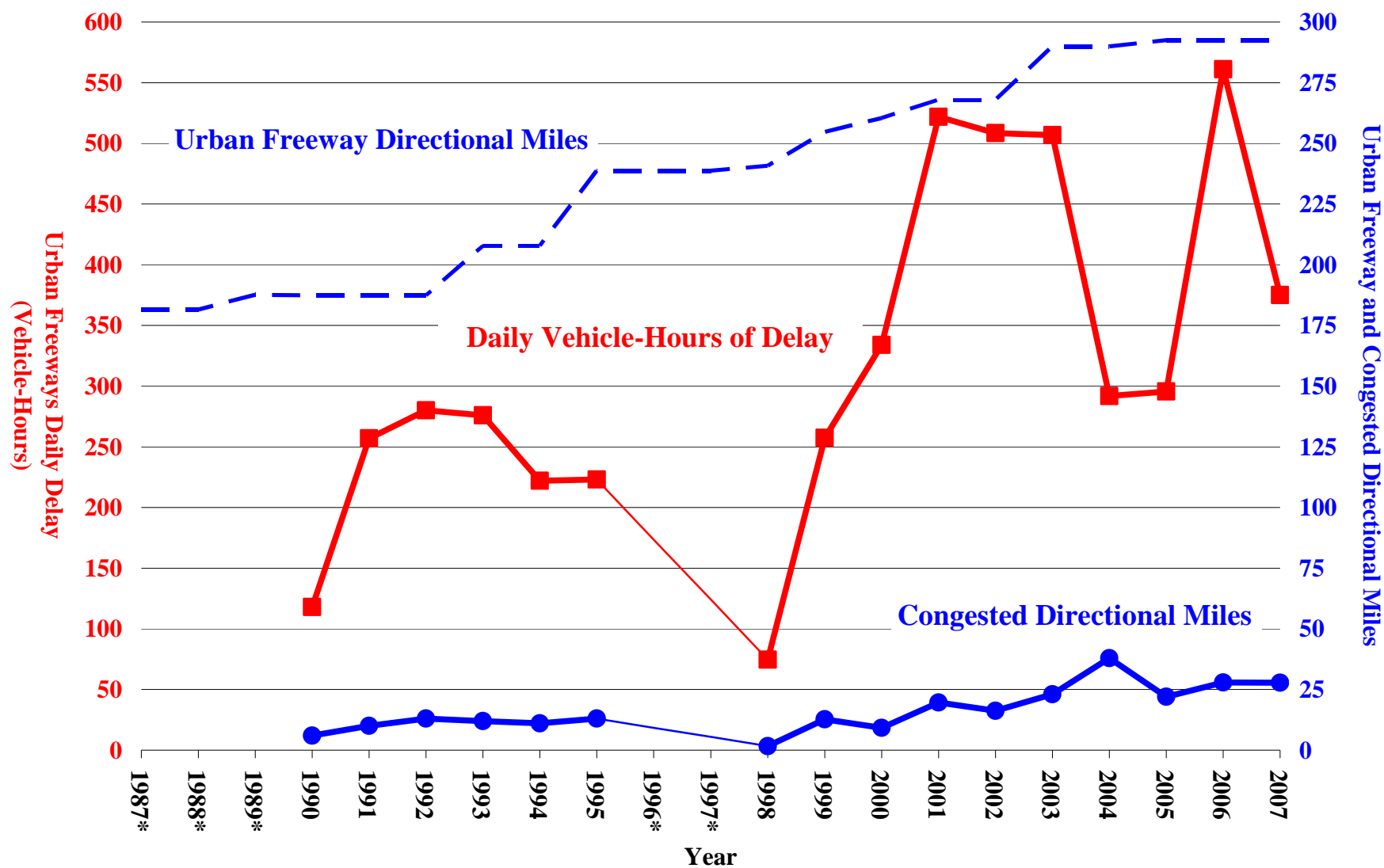
District 6's DVHD and CDM numbers are relatively small. Any small change for 2007 may translate to a large percentage increase or decrease.

Exhibit 3-13: District 6 Highway Congestion Summary

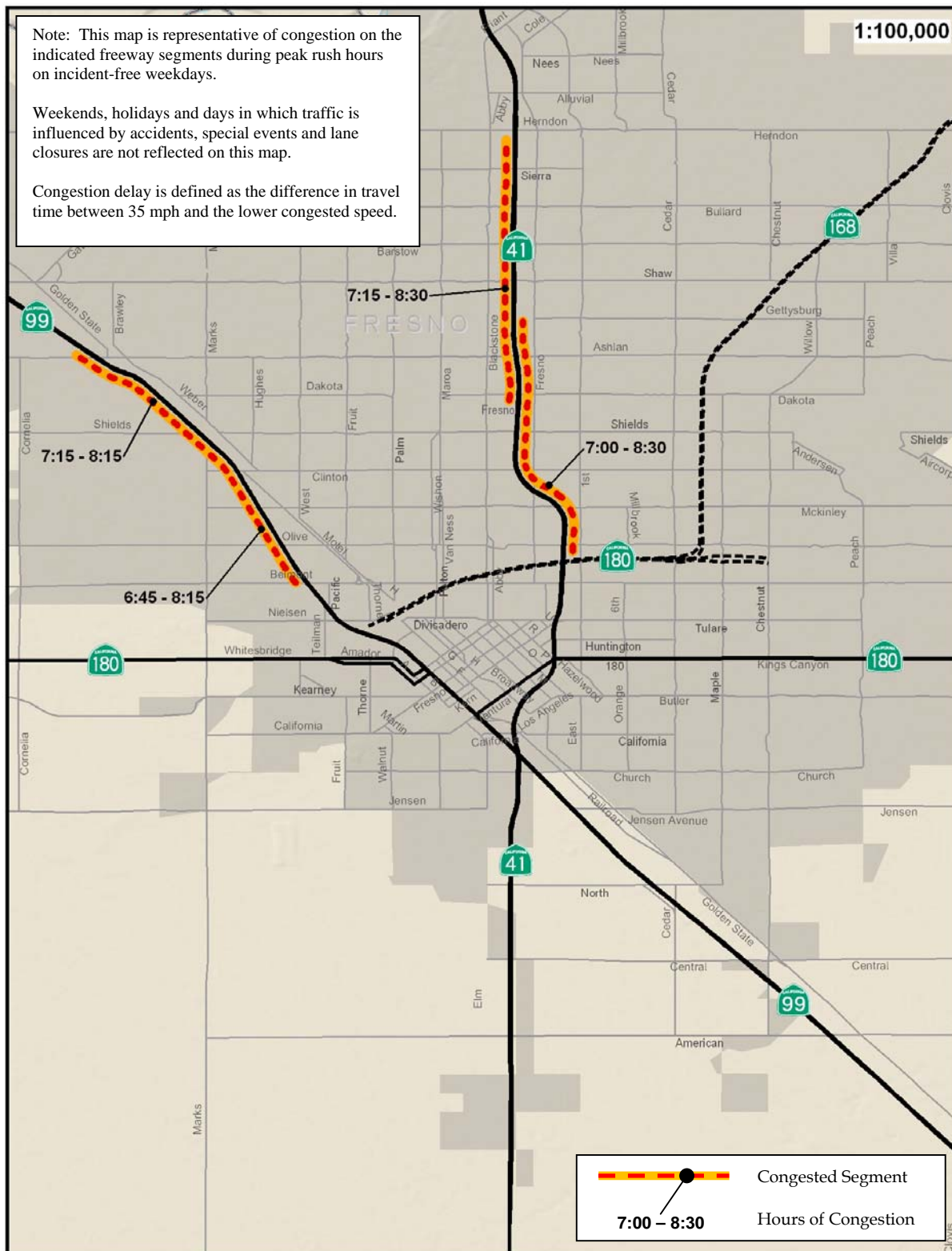
District 6	2006	2007	Percent Change 2006-2007	Percent of Statewide 2007
Daily Vehicle-Hours of Delay	561	375	-33%	0%
Fresno Kern	523 39	375 -	-28% n/a	
Congested Directional Miles	27.9	27.8	0%	1%
Fresno Kern	26.5 1.4	27.8 -	5% n/a	
Total Urban Area Freeway Directional Miles	292.6	292.6		
Congested Miles/Total Urban Freeway Miles	10%	9%		

Note: County numbers may not sum to district totals due to rounding.

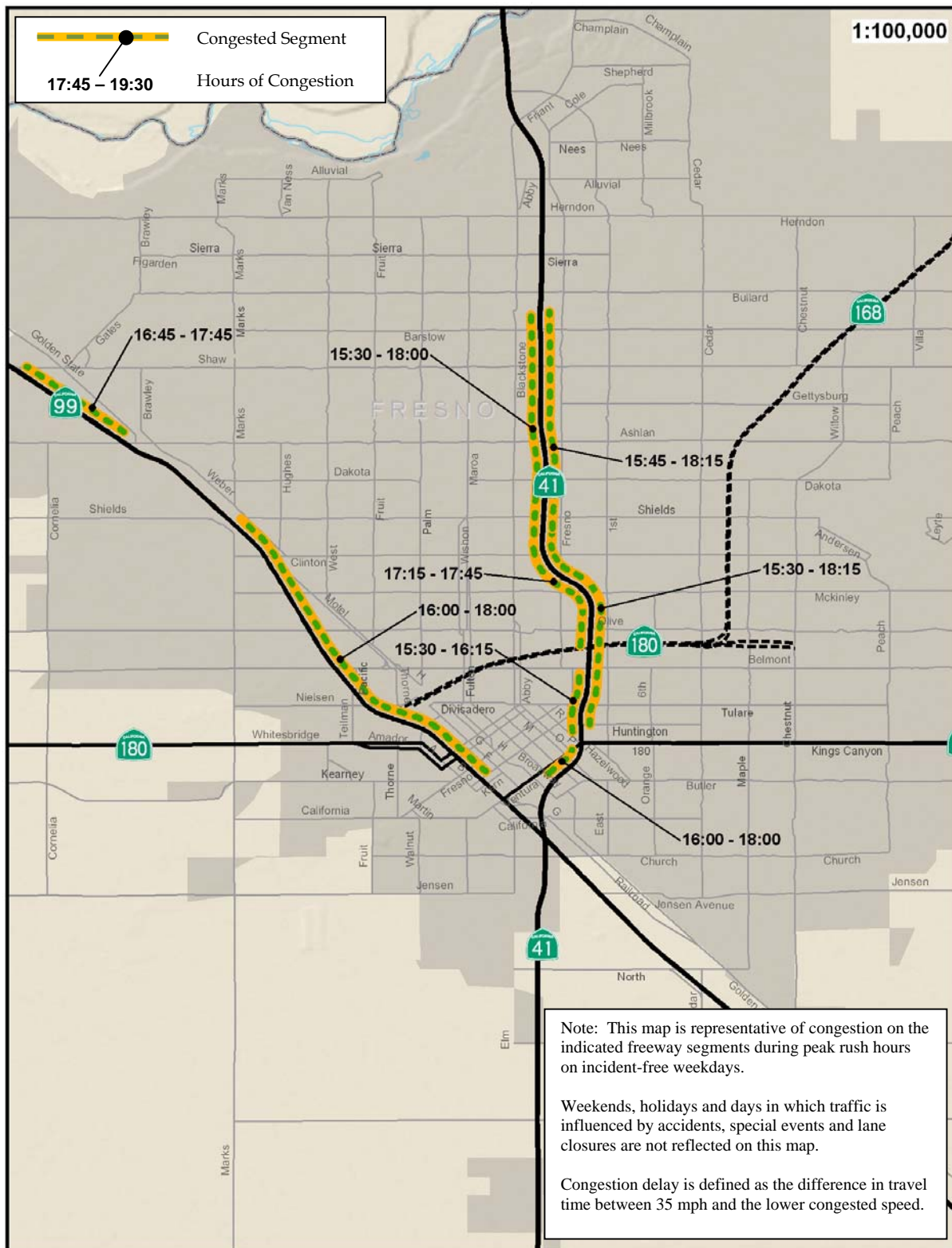
Exhibit 3-14: District 6 Congestion Trends 1990-2007



* No HICOMP reporting performed.



**EXHIBIT 3-15
DISTRICT 6
FRESNO AREA
2007 MORNING CONGESTION MAP**



**EXHIBIT 3-16
DISTRICT 6
FRESNO AREA
2007 EVENING CONGESTION MAP**

3.5 District 7: Los Angeles-Ventura Area

Exhibit 3-17 summarizes weekday recurrent congestion in District 7 during 2007 compared to 2006. Exhibit 3-18 presents trends in DVHD and CDM for the district. Exhibits 3-19 and 3-20 are maps showing the location and duration of morning and evening peak-period congestion.

The 2006 and 2007 data used in this compilation are based on data retrieved from automatic detectors and floating vehicles. Prior to 1998, delay estimates were based on the spring and fall data.

In 2007, the total DVHD was 178,938 compared to 172,399 hours reported for 2006 (a 4 percent increase). CDM increased from 633 miles in 2006 to 650 miles in 2007 (a 3 percent increase).

- For District 7, most of the data was compiled from existing automatic detection. During 2007 more congestion was estimated than during the 2006 because of construction activities, increased population growth, and better quality detection.
- Adding general-purpose lanes, as well as High Occupancy Vehicle (HOV) and auxiliary lanes resulted in a better operational capacity for the related routes and contributed to a reduction in travel delay. These improvements were offset by the abrupt increase in population growth for both population and vehicles due to the sharp increase in real estate values and the willingness of people and developers to build more communities.
- The morning increase in delay on northbound I-405 is mainly due to the construction of the HOV project between I-105 and the I-10. This construction contributes to significant daily delays on northbound I-405. Also, the numerous residential and commercial projects being built in the areas served by I-405, especially in the communities of West Los Angeles, Santa Monica, Century City, and Sherman Oaks contributed to the delay. These communities have grown in population to unprecedented levels. In addition, a significant increase in truck traffic volumes using I-405 has had an adverse impact on traffic congestion.
- The evening decrease in delay on southbound I-405 could be attributed to several factors, some of which would be the newly configured connector from I-405 to I-10 (opened in 2007) and the newly built on-ramp from Santa Monica Boulevard to southbound I-405 (opened in 2007).
- In addition, the HOV lane on southbound I-405 from US-101 to Waterford Street is being used by more people, resulting in a decrease in single-occupancy vehicles and a resulting improvement in traffic flow. The newly built HOV lane around Howard Hughes Parkway and the connection to the existing HOV lane south of Los Angeles International Airport in 2007 helped to mitigate congestion on southbound I-405 especially during evening peak hours.
- The increase in morning delay in the Santa Monica area on westbound I-10 is not only due to population growth, but also to improved loop detector reporting. The portion of

the I-10 east of downtown Los Angeles (known as the San Bernardino freeway) showed a reasonable population growth.

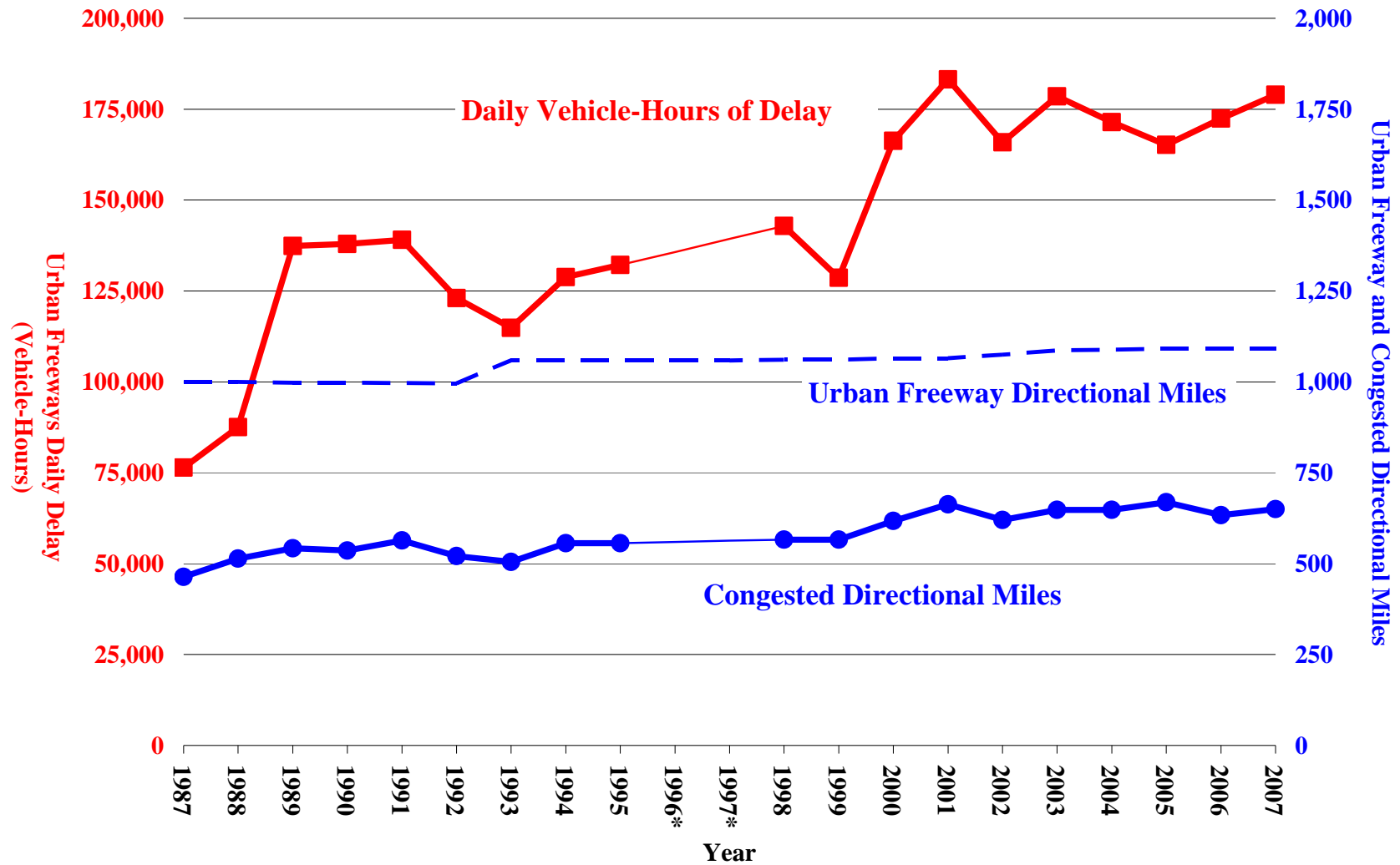
- On I-5, the increase in delay is attributed mainly to numerous construction activities in addition to the population growth.
- On SR-57 and SR-60, the main reasons for increased delay in travel time are due to a huge increase in truck traffic volumes in addition to high population growth. There has been a sharp increase in the development of many large residential communities and commercial centers in areas adjacent to and served by these freeways.

Exhibit 3-17: District 7 Highway Congestion Summary

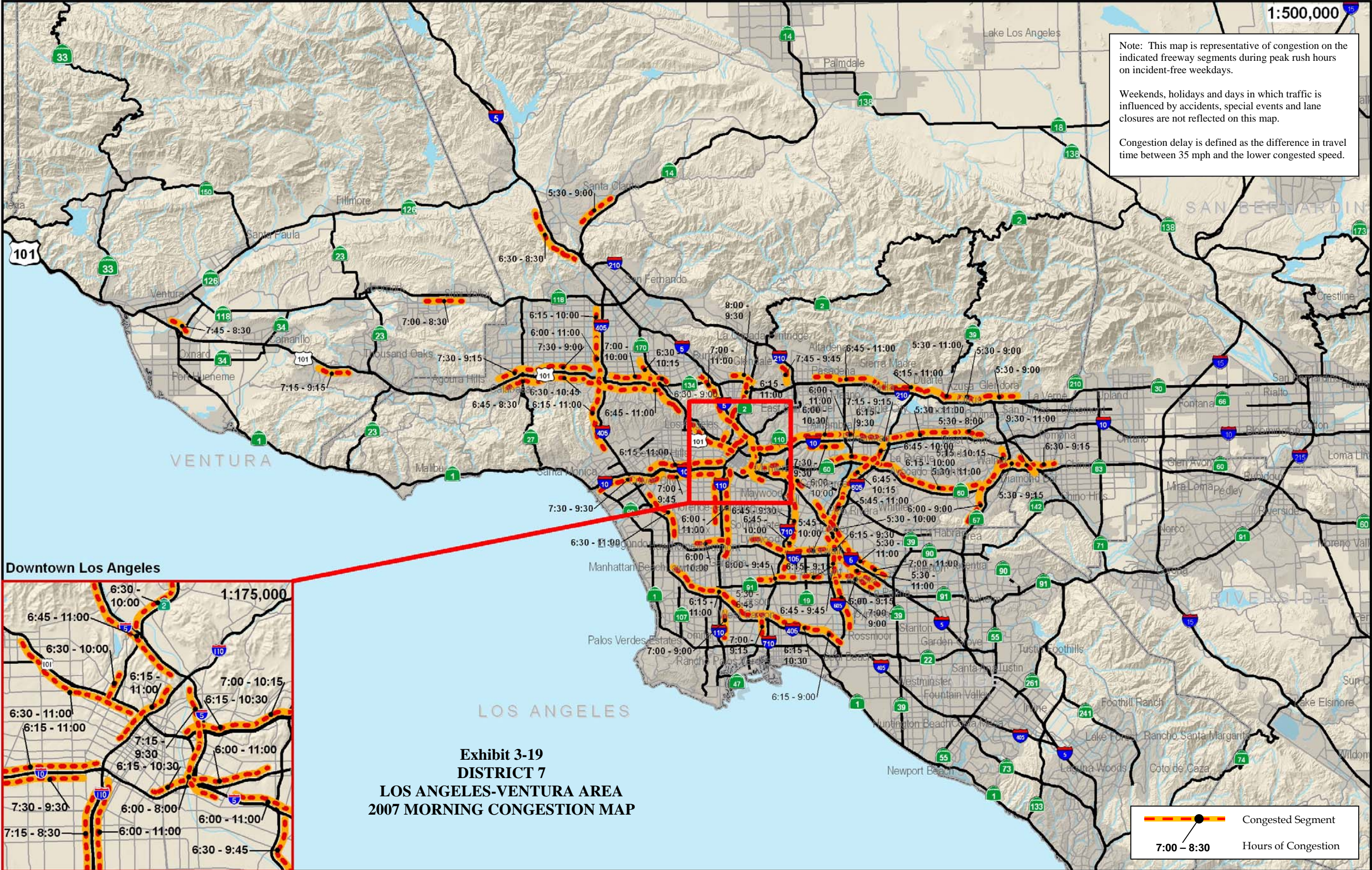
District 7	2006	2007	Percent Change 2006-2007	Percent of Statewide 2007
Daily Vehicle-Hours of Delay	172,399	178,938	4%	31%
Los Angeles Ventura	171,707 692	178,249 688	4% -1%	
Congested Directional Miles	633.3	651.0	3%	30%
Los Angeles Ventura	621.3 12.0	639.5 11.5	3% -4%	
Total Urban Area Freeway Directional Miles	1,091.4	1,091.4		
Congested Miles/Total Urban Freeway Miles	58%	60%		

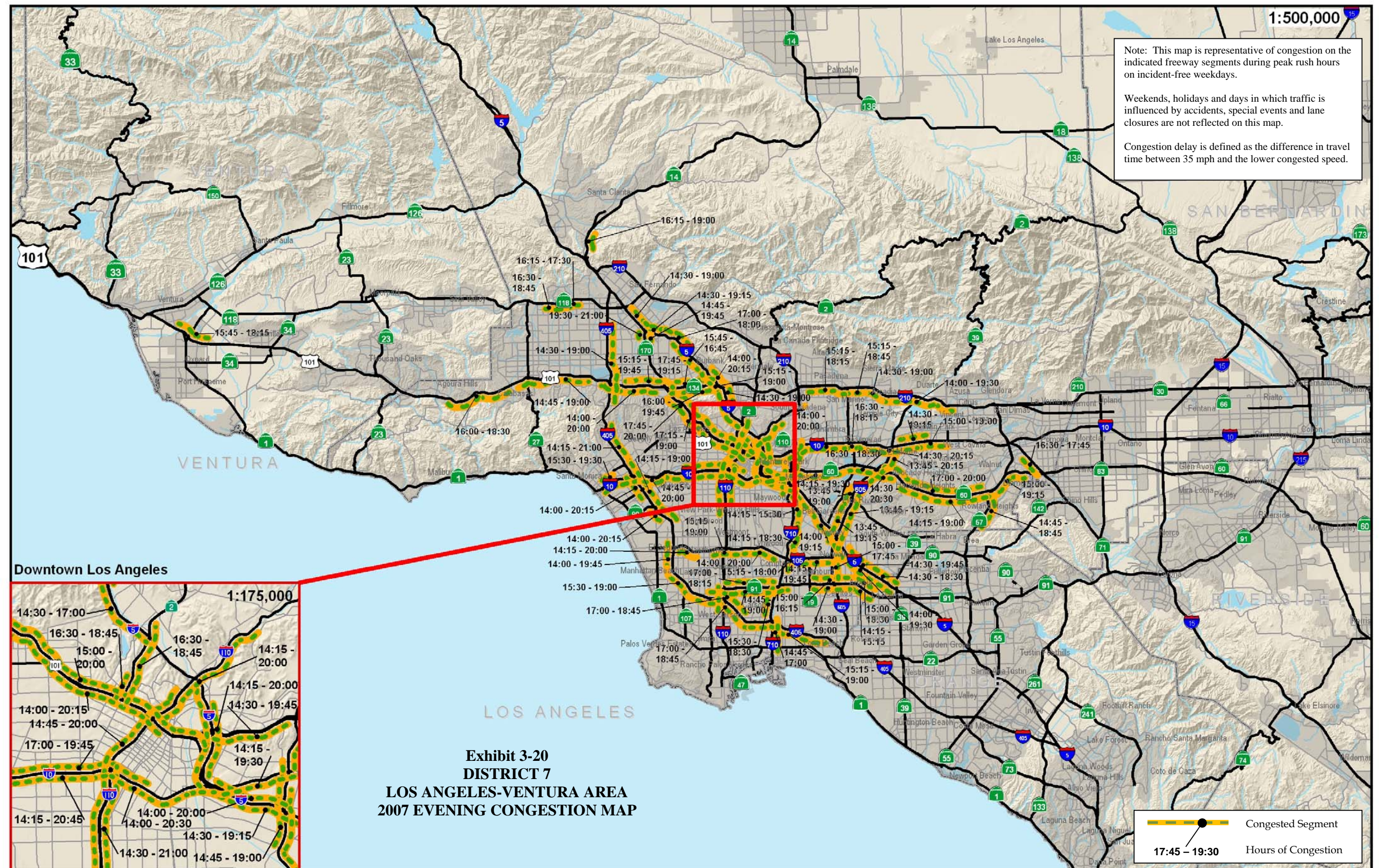
Note: County numbers may not sum to district totals due to rounding.

Exhibit 3-18: District 7 Congestion Trends 1987-2007



* No HICOMP reporting performed.





3.6 District 8: San Bernardino-Riverside Area

Exhibit 3-21 summarizes weekday recurrent congestion in District 8 during 2007 compared to 2006. Exhibit 3-22 presents trends in DVHD and CDM for the district. Exhibits 3-23 and 3-24 are maps showing the locations and durations of morning and evening peak-period congestion.

The 2007 results reported in this compilation are based in large part on spring and fall data collected by floating vehicles. In general, floating vehicle data accuracy has improved in 2007 as two separate sets of runs was completed on different weekdays in the fall and spring. Only one set of runs were completed in 2006. Therefore, the 2007 HICOMP figures represent a better sampling of the traffic delay throughout District 8. Prior to 1998, delay estimates were based on both spring and fall floating vehicle data. Beginning in 2001, District 8 began to use fall automatic detection data to estimate delay for some route segments. Other segments continued to be monitored using floating vehicles.

In 2007, the total DVHD was 54,456 hours compared to 52,100 hours reported for 2006 (a 5 percent increase). The CDM increased to 223 miles in 2007 compared to 154 miles in 2006 (a 45 percent increase). Some route specific observations are shown below:

- In 2007, a new floating vehicle segment was added on I-15 to cover newly identified congestion in Riverside County. The large growth in population resulted in this increased delay.
- Construction was completed on one general purpose and one HOV lane in each direction on SR-60, which has alleviated congestion on that freeway.
- In 2007, floating vehicle runs were performed on SR-91 in each direction. Faulty detector data was underestimating the total delay. This was mainly due to sparse detector coverage, especially westbound, and several detector sites were inoperable due to construction.
- Construction on the 60/91/215 interchange has also increased congestion on SR-91 in Riverside County. Construction closures on local arterials due to bridge widening and other improvements have changed the local traffic pattern. Sometimes closures force traffic to use the freeway, and then completed improvements offer a viable alternative to the freeway under construction. Population gains and increases to the limits of the floating vehicle runs have also combined to produce results inconsistent with the previous year. Overall, delay increased on I-215 in Riverside County.
- The limits of floating vehicle runs were increased on I-10. Directional traffic has changed due to completion of I-210 construction. The opening of I-210 made the bottleneck at the 10/210 interchange more severe. This combined with the on-going construction on I-10 in Redlands caused an increase in delay eastbound. Westbound traffic improved due to completion of I-210 providing an alternate route to I-210. This resulted in an increase in delay eastbound and a decrease westbound.

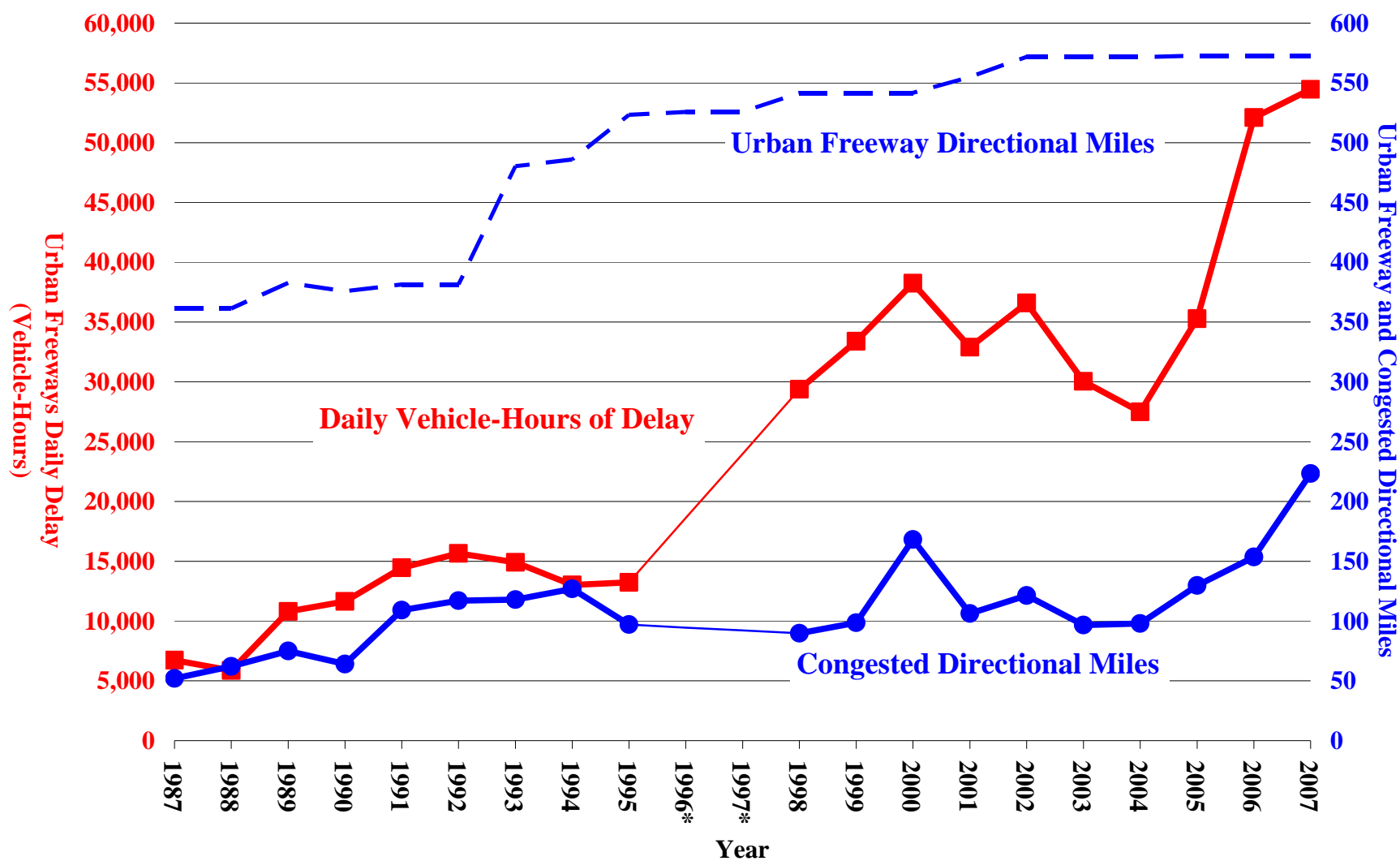
- Directional traffic has changed on I-15 in San Bernardino County due to the completion of the I-210 extension, the added lanes on SR-60 and the Devore II construction project at the I-15/I-215 Interchange. Overall delay decreased.
- While the overall delay on I-215 in San Bernardino County remained about the same, directional traffic patterns have changed due to the completion of I-210 freeway extension.

Exhibit 3-21: District 8 Highway Congestion Summary

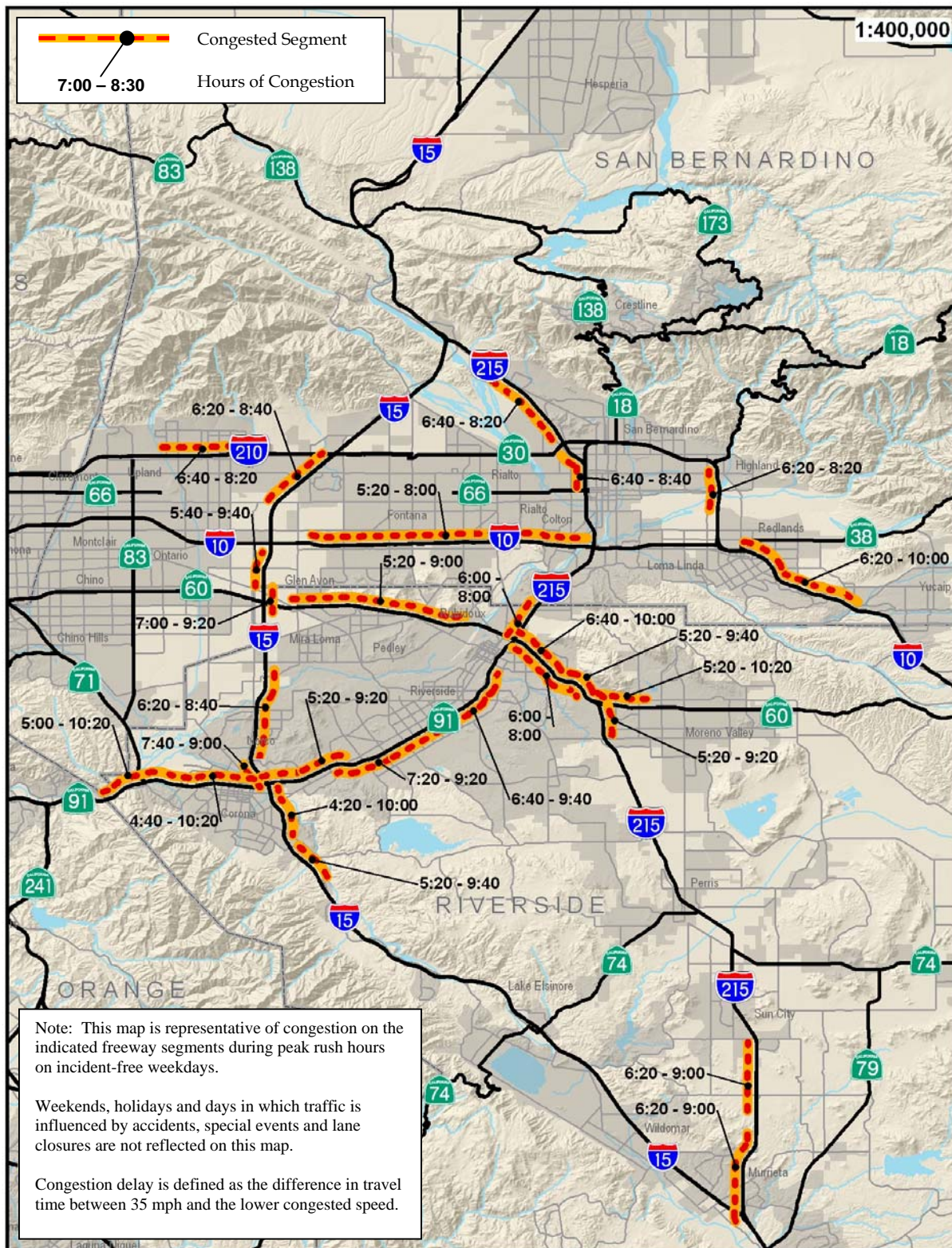
District 8	2006	2007	Percent Change 2006-2007	Percent of Statewide 2007
Daily Vehicle-Hours of Delay	52,100	54,456	5%	9%
Riverside	37,279	38,019	2%	
San Bernardino	14,821	16,436	11%	
Congested Directional Miles	153.6	223.4	45%	10%
Riverside	85.0	126.4	49%	
San Bernardino	68.6	97.0	41%	
Total Urban Area Freeway Directional Miles	572.8	572.8		
Congested Miles/Total Urban Freeway Miles	27%	39%		

Note: County numbers may not sum to district totals due to rounding.

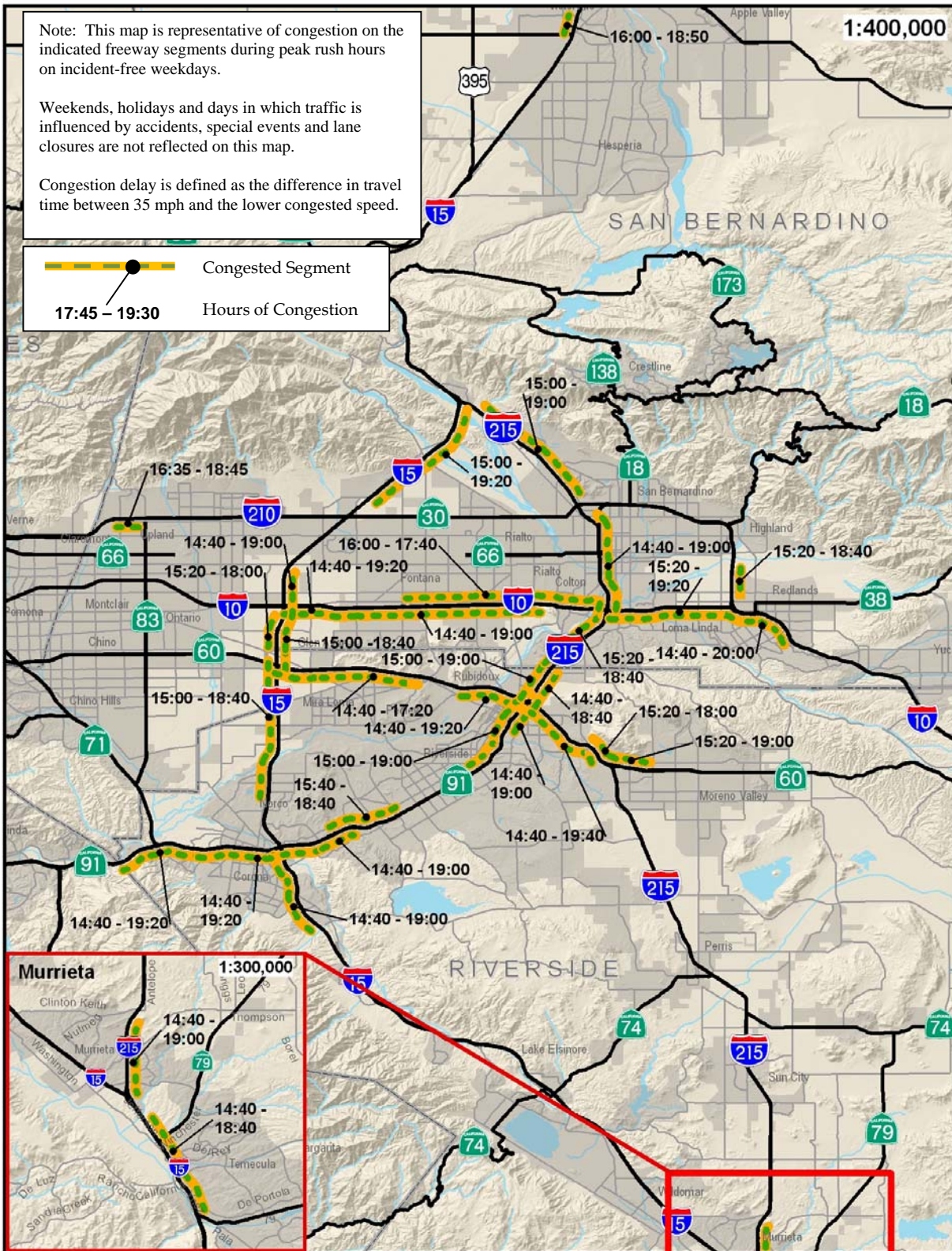
Exhibit 3-22: District 8 Congestion Trends 1987-2007



* No HICOMP reporting performed.



**EXHIBIT 3-23
DISTRICT 8
SAN BERNARDINO-RIVERSIDE AREA
2007 MORNING CONGESTION MAP**



3.7 District 10: Stockton Area

Exhibit 3-25 summarizes weekday recurrent congestion in District 10 during 2007 compared to 2006. Exhibit 3-26 presents trends in DVHD and CDM for the district. Exhibits 3-27 and 3-28 are maps showing the location and duration of morning and evening peak-period congestion.

In 2006, District 10 began to monitor congestion on one segment using automatically collected data from the spring and fall of 2006. Prior to 2006, all the data used in this data compilation are based on fall floating vehicle data collection efforts. District 10 has been monitoring traffic congestion for the HICOMP data compilation since 1998, when recurrent congestion grew to a level to warrant monitoring.

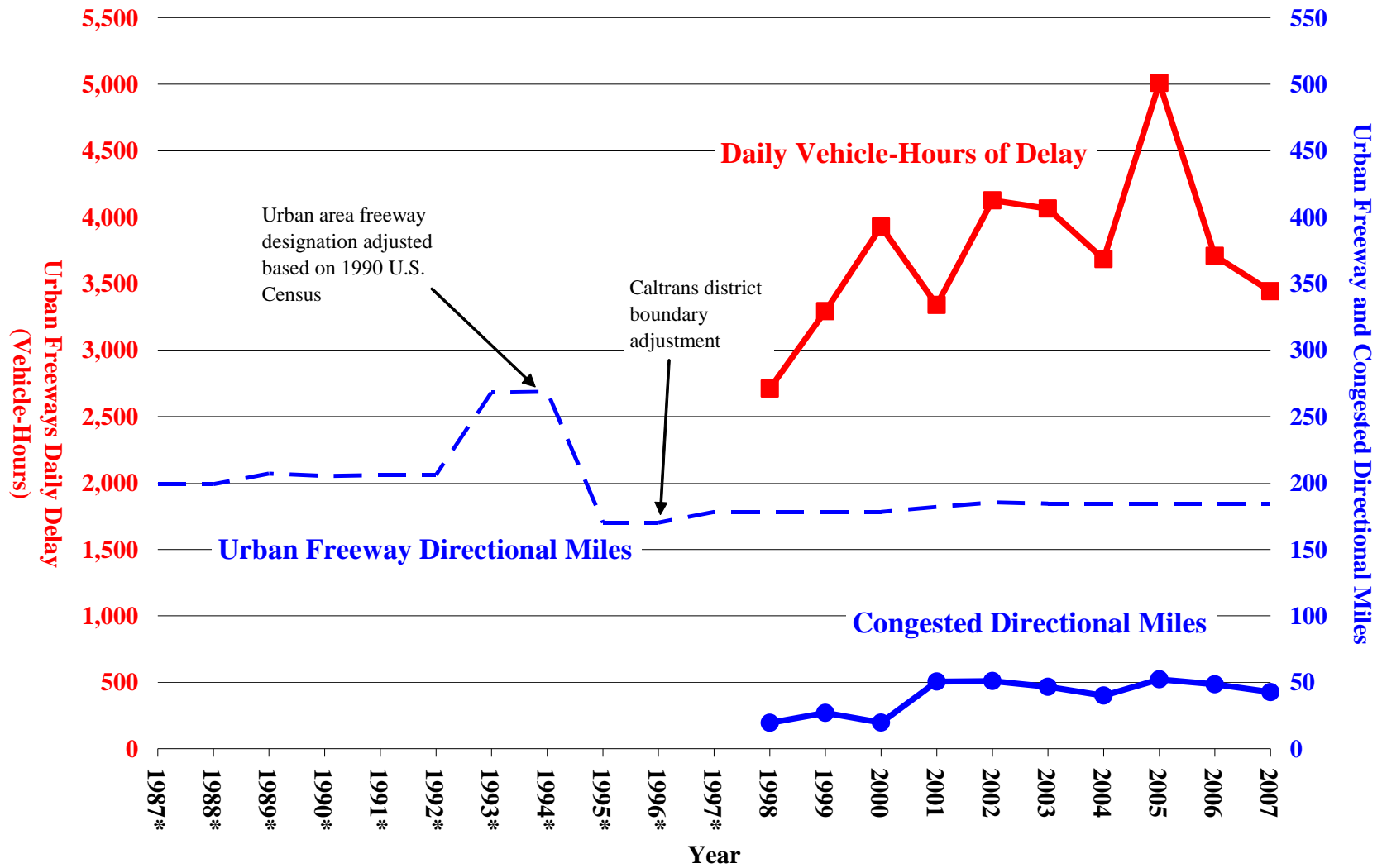
In 2007, the total DVHD was 3,444 hours compared to 3,709 hours reported for 2006 (a 7 percent decrease). The CDM declined to 42.6 miles in 2007, down 6 miles from 2006 (a 12 percent decrease).

Congestion remained consistent on the major freeways in District 10 with the exception of a slight decrease on I-205 and SR-120. These two corridors are major commute routes to the San Francisco Bay Area and Silicon Valley. The decline in congestion is attributed to the current economic climate.

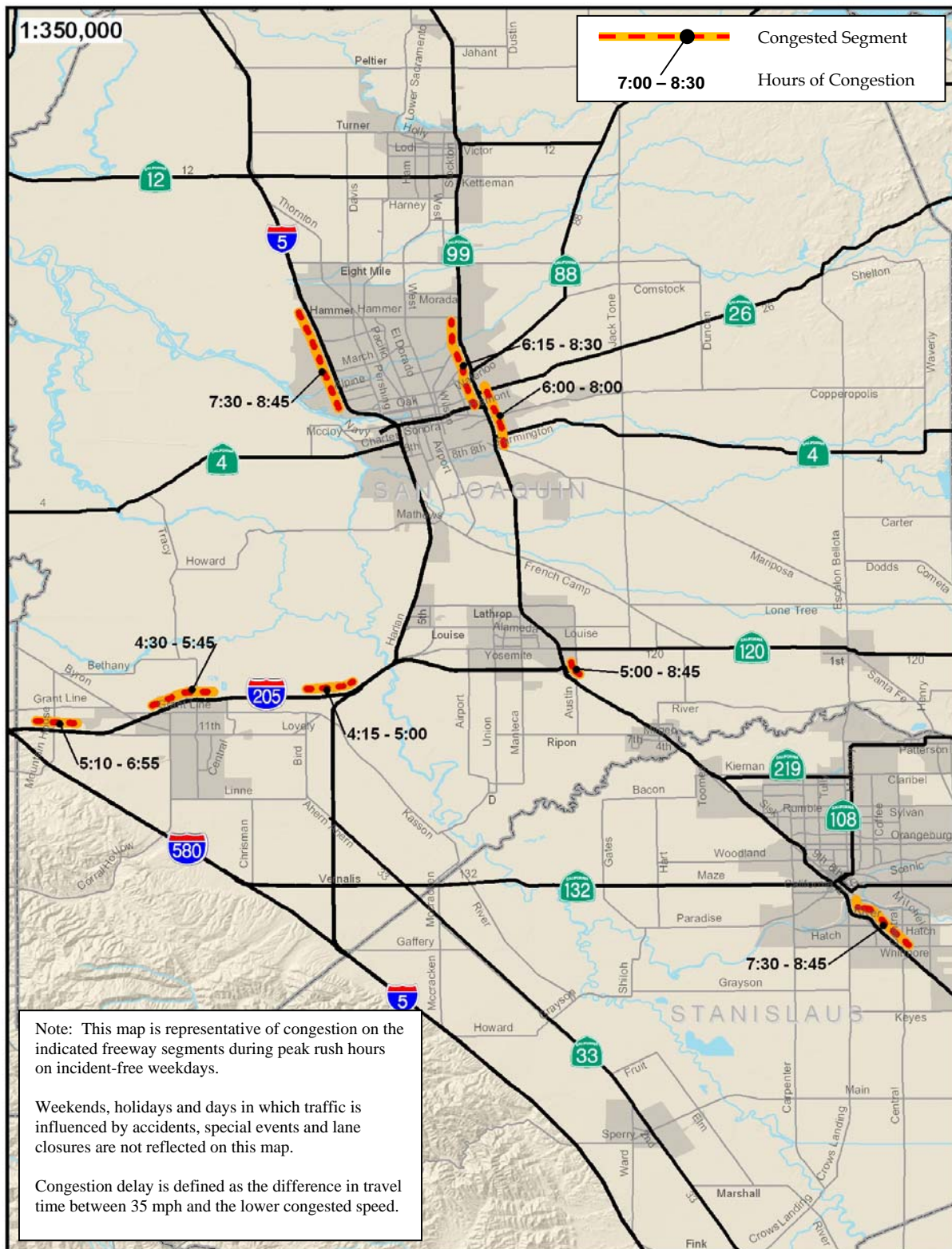
Exhibit 3-25: District 10 Highway Congestion Summary

District 10	2006	2007	Percent Change 2006-2007	Percent of Statewide 2007
Daily Vehicle-Hours of Delay	3,709	3,444	-7%	1%
San Joaquin	3,529	3,264	-7%	
Stanislaus	180	180	0%	
Congested Directional Miles	48.3	42.6	-12%	2%
San Joaquin	41.8	36.1	-14%	
Stanislaus	6.5	6.5	0%	
Total Urban Area Freeway Directional Miles	184.4	184.4		
Congested Miles/Total Urban Freeway Miles	26%	23%		

Exhibit 3-26: District 10 Congestion Trends 1998-2007



* No HICOMP reporting performed.



**EXHIBIT 3-27
DISTRICT 10
STOCKTON AREA
2007 MORNING CONGESTION MAP**

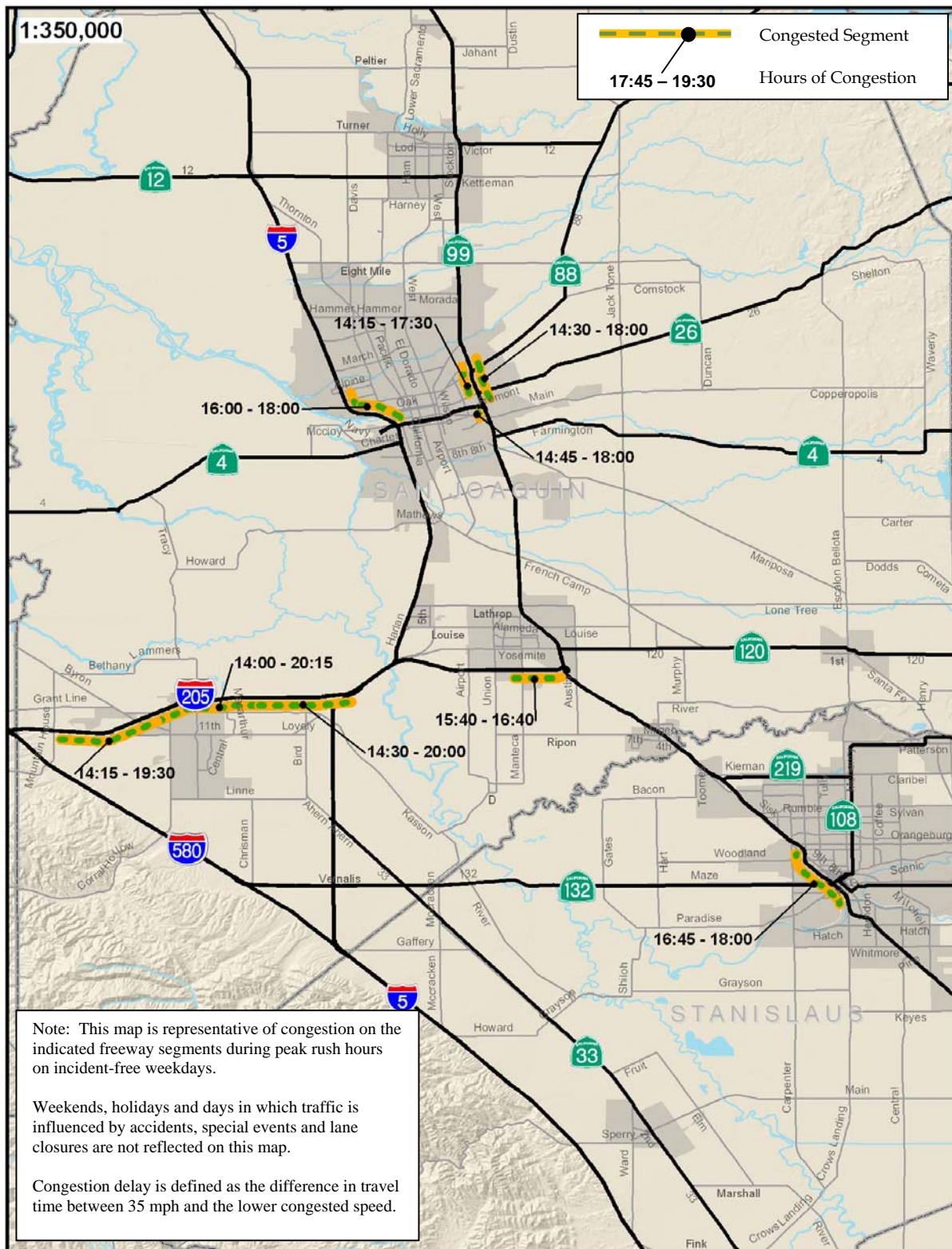


EXHIBIT 3-28
DISTRICT 10
STOCKTON AREA
2007 EVENING CONGESTION MAP

3.8 District 11: San Diego Area

Exhibit 3-29 summarizes weekday recurrent congestion in District 11 during 2007 compared to 2006. Exhibit 3-30 presents trends in DVHD and CDM for the district. Exhibits 3-31 and 3-32 are maps showing the location and duration of morning and evening peak-period congestion.

Both the 2006 and 2007 data used in this compilation are based on fall floating vehicle and automatic detection data collection efforts. Prior to 1998, delay estimates were based on both spring and fall floating vehicle data. Since 1998, District 11 has been using automatic detection data from the fall to estimate delay for many route segments.

In 2007, total DVHD was 63,099 hours compared to 63,833 hours reported for 2006 (a 1 percent decline). The CDM was 306 miles in 2007, up from 302 miles in 2006 (a 1 percent increase).

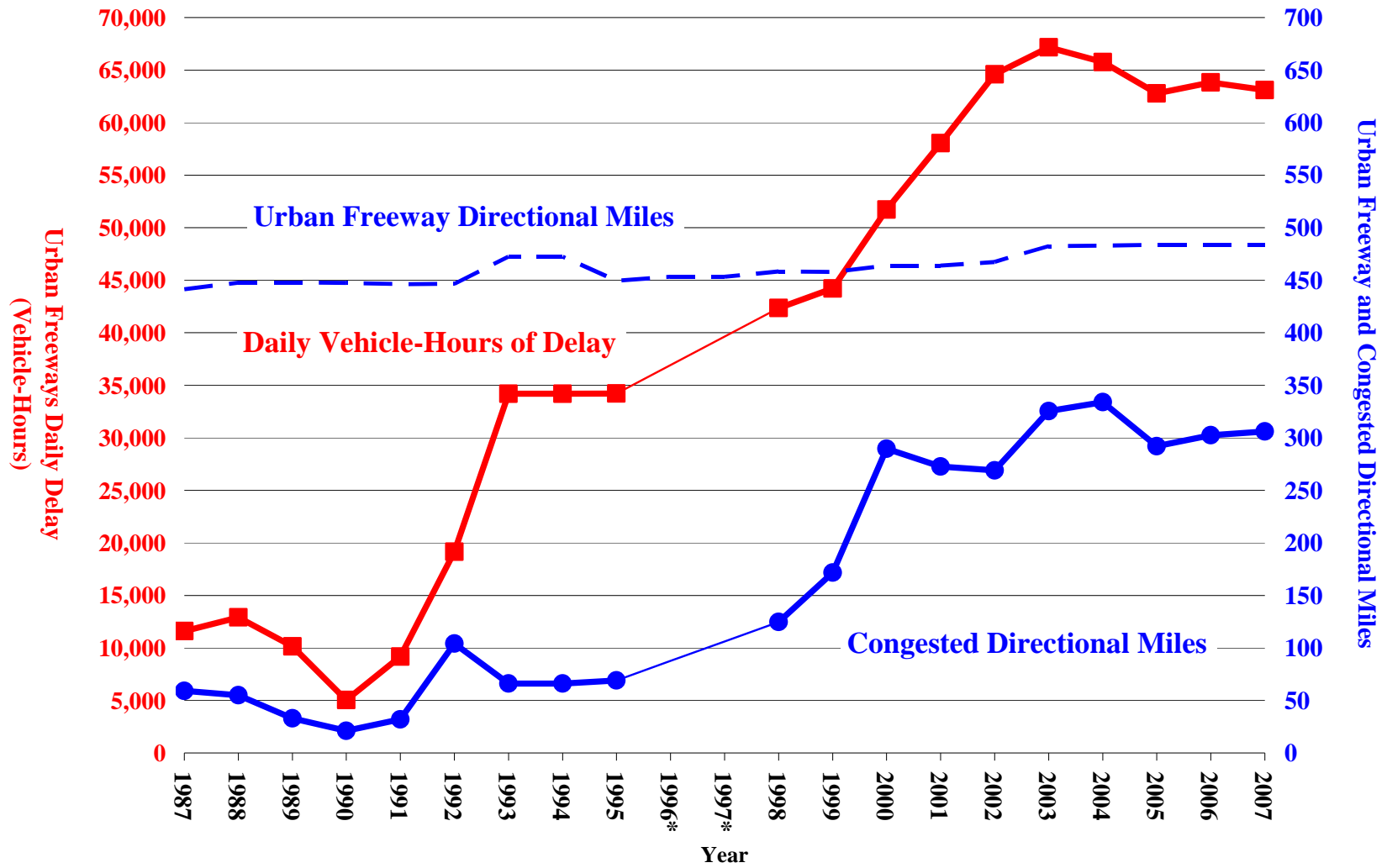
High gas prices and the slowing economy have reduced the number of daily trips in the San Diego Area. In addition, several freeway improvement projects have had recognizable impacts on traffic flow in the area:

- The Department completed the extension of an auxiliary lane on SR-52 westbound in 2007. This reduced CDM by 2.5 miles and shifted the queue of vehicles westward from the Oak Canyon Bridge exit to the Santo Road exit.
- The 2007 completion of the bridge widening on I-5 at 18th and 24th Streets reduced CDM in both directions. The northbound queue, which previously began at Palomar Road, shifted north to 24th Street and reduced CDM by 1.5 miles. The southbound queue at Harbor Drive was reduced by about one-half mile and the duration was reduced by approximately one hour from four hours in 2006 to three hours in 2007.
- Construction on an HOV lane extension from Via De La Valle to Manchester contributed to delays along northbound and southbound I-5. Construction has interfered with the traffic sensors in the area.
- The SR-125 toll road from near the border at Otay Mesa to SR-54 opened in November 2007. It is too early to quantify the impact of SR-125, but it is expected to draw motorists from I-805 and reduce congestion on that roadway.

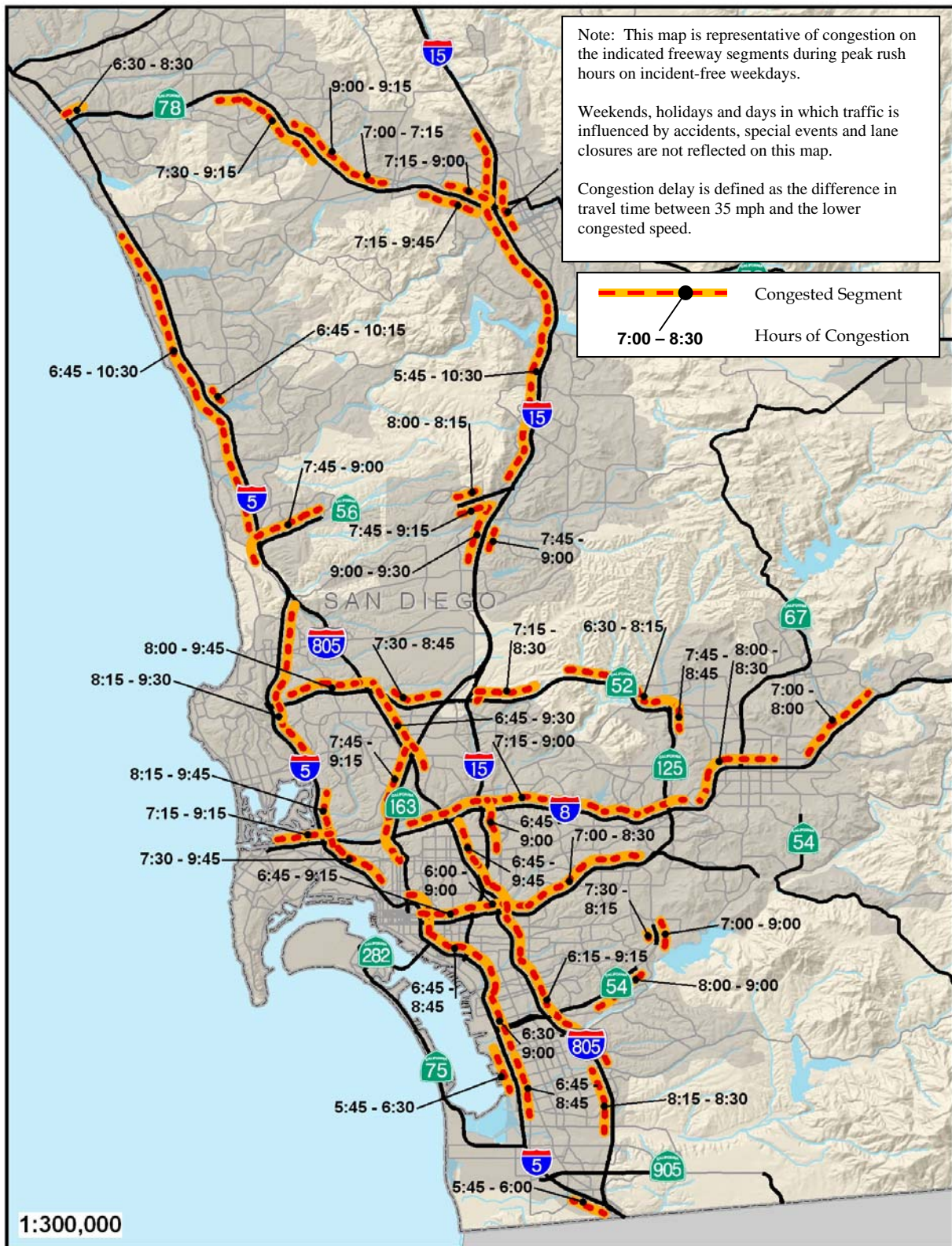
Exhibit 3-29: District 11 Highway Congestion Summary

District 11	2006	2007	Percent Change 2006-2007	Percent of Statewide 2007
Daily Vehicle-Hours of Delay	63,833	63,099	-1%	11%
San Diego	63,833	63,099	-1%	
Congested Directional Miles	302.3	306.1	1%	14%
San Diego	302.3	306.1	1%	
Total Urban Area Freeway Directional Miles	483.8	483.8		
Congested Miles/Total Urban Freeway Miles	62%	63%		

Exhibit 3-30: District 11 Congestion Trends 1987-2007



* No HICOMP reporting performed.



**EXHIBIT 3-31
 DISTRICT 11
 SAN DIEGO AREA
 2007 MORNING CONGESTION MAP**

3.9 District 12: Orange County

Exhibit 3-33 summarizes weekday recurrent congestion in District 12 during 2007 compared to 2006. Exhibit 3-34 presents trends in DVHD and CDM for the district. Exhibits 3-35 and 3-36 are maps showing the location and duration of morning and evening peak-period congestion.

The 2007 data was derived from floating car data collection. In 2007, the total DVHD was unchanged at 98,796 hours compared to 98,640 hours in 2006. The CDM in 2007 declined from nearly 260 miles reported in 2006 to 244 miles (a 6 percent decline).

Current floating car data on SR-91 eastbound show that congestion levels have increased significantly in the afternoon peak period from 12,833 DVHD in 2006 to 16,169 DVHD in 2007. The queue length along the same segment has also grown from the Weir Canyon to Imperial Highway Interchanges. This congestion can only be attributed to an increase in demand. Furthermore, observations show the SR-241 toll road heading to the eastbound SR-91 has also increased in queue length with the backup extending beyond the Windy Ridge Toll Plaza. The ADT on SR-91 at the Riverside County line grew from 274,793 in 2006 to 289,545 in 2007.

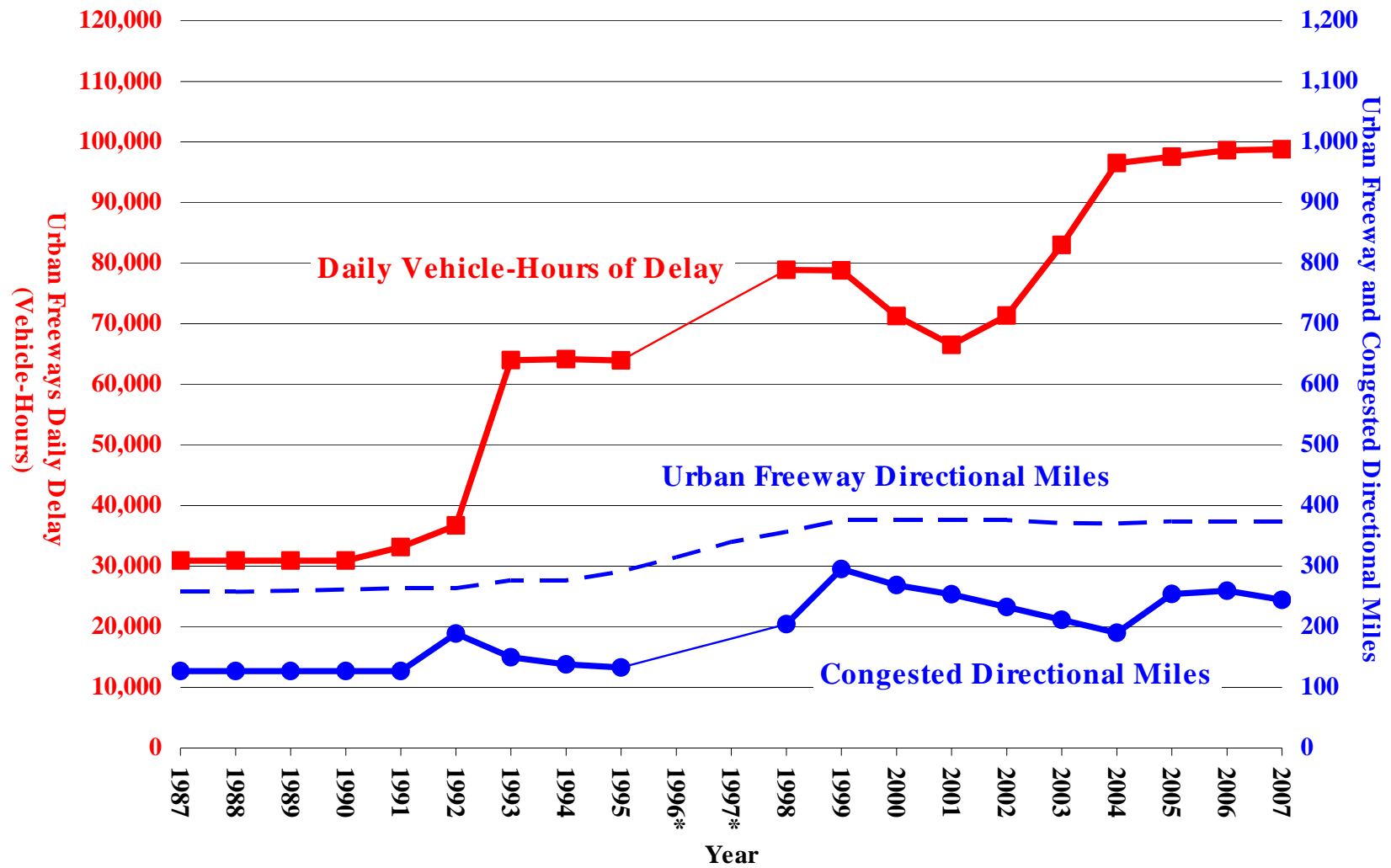
The congestion level on I-605 southbound was 2,031 DVHD in 2004. There was no data collected in 2005. The floating car data collected in 2006 shows no delay on the southbound Orange County segment. This could be because motorists heading to the eastbound SR-22 were avoiding the southbound I-405 segment thus relieving congestion on the southbound I-605.

In 2007, floating car data show that congestion is returning to the I605 southbound for the above-referenced segment. This indicated an increased demand on the I-605, which could be contributing to traffic heading south toward Orange County from Los Angeles. This is because I-5 is currently under construction and motorists are diverting to the southbound I-605 to I-405 to reach their destination.

Exhibit 3-33: District 12 Highway Congestion Summary

District 12	2006	2007	Percent Change 2006-2007	Percent of Statewide 2007
Daily Vehicle-Hours of Delay	98,640	98,796	0%	17%
Orange	98,640	98,796	0%	
Congested Directional Miles	259.5	244.3	-6%	11%
Orange	259.5	244.3	-6%	
Total Urban Area Freeway Directional Miles	374.2	374.2		
Congested Miles/Total Urban Freeway Miles	69%	65%		

Exhibit 3-34: District 12 Congestion Trends 1987-2007



* No HICOMP reporting performed.

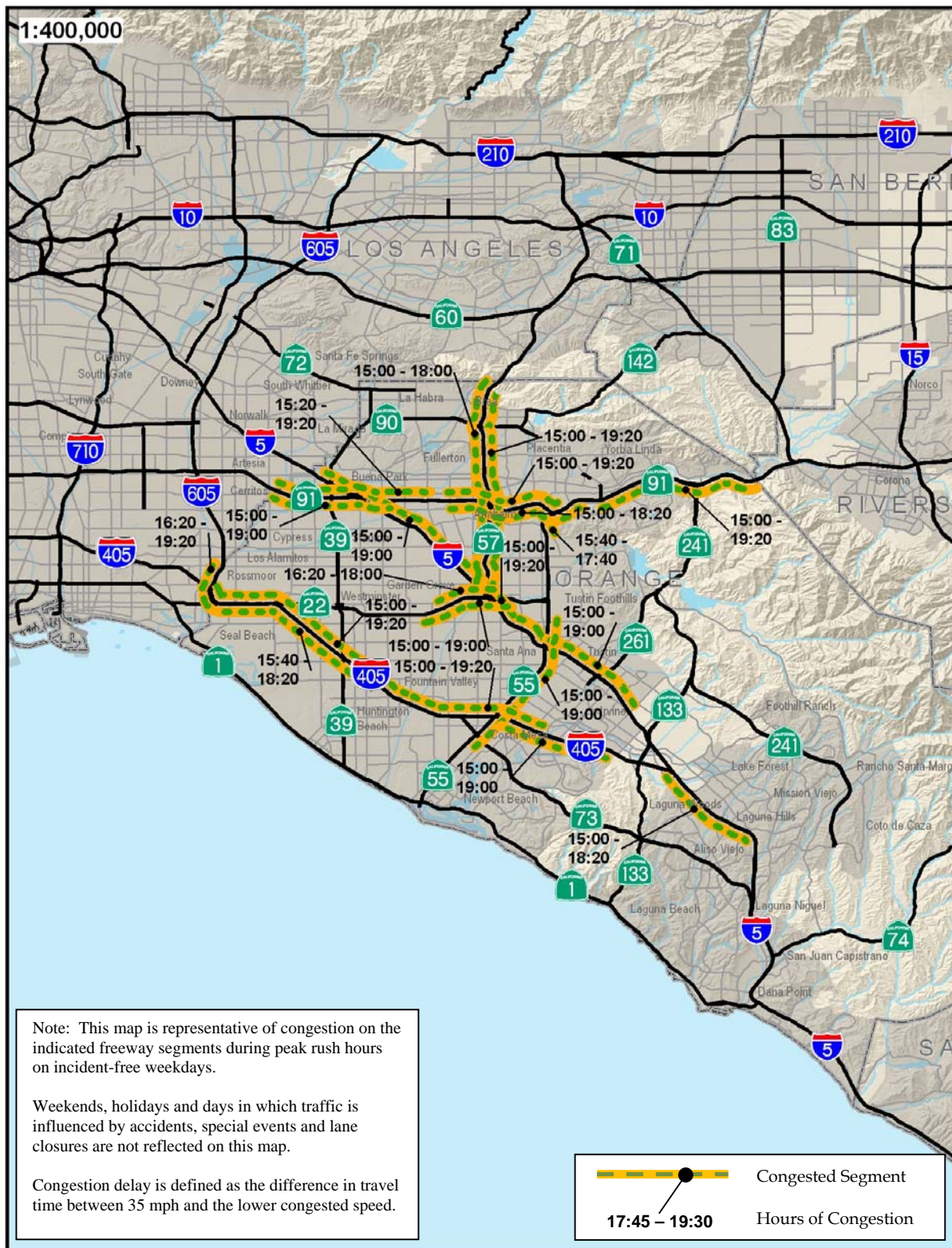
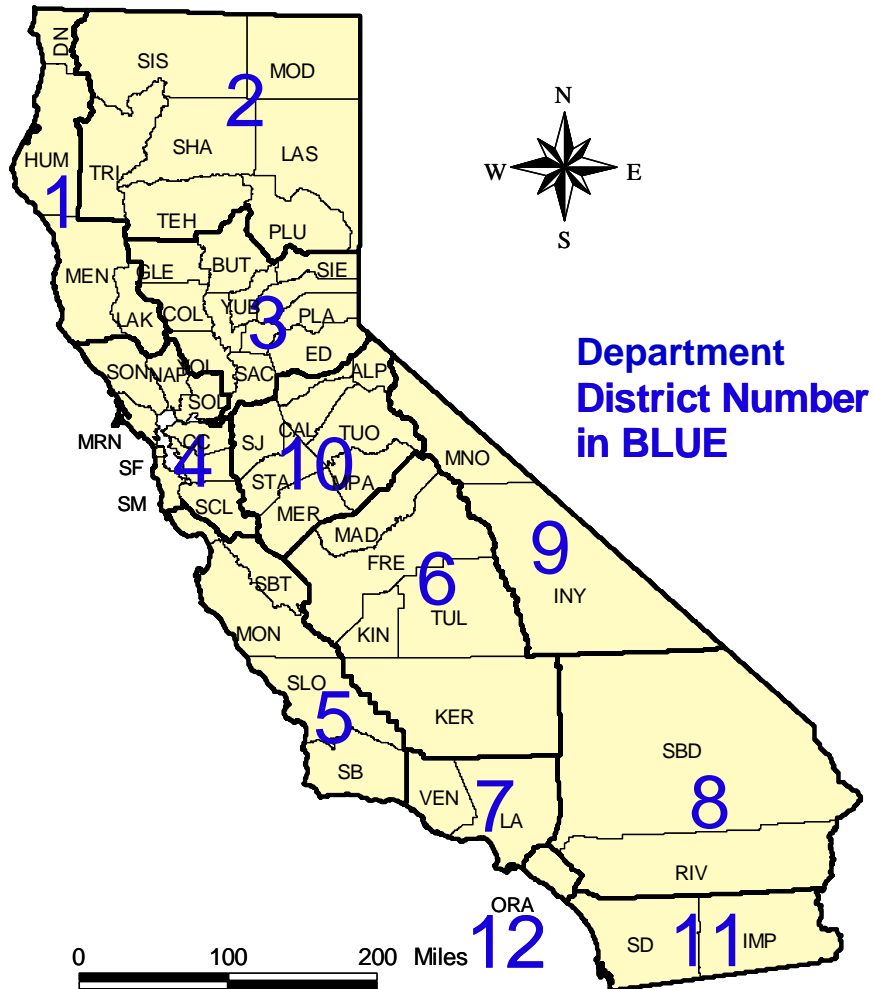


EXHIBIT 3-36
DISTRICT 12
ORANGE COUNTY
2007 EVENING CONGESTION MAP

Appendix A: Department District and County Map



Appendix B: Department Contacts

District	Contact Person	Public Number	Email Address
03	Matt Taghipour	(916) 859-7950	matt_taghipour@dot.ca.gov
04	Ron Kyutoku	(510) 286-4640	ron_kyutoku@dot.ca.gov
05	Roger D. Barnes	(805) 594-6190	roger_d_barnes@dot.ca.gov
06	Albert Lee	(559) 488-4111	albert_lee@dot.ca.gov
07	Kirk Patel	(213) 897-1825	kirk_patel@dot.ca.gov
08	Mourshad Haider	(909) 889-1821	mourshad_haider@dot.ca.gov
10	Arlene Cordero	(209) 948-3894	arlene_cordero@dot.ca.gov
11	Lawrence Emerson	(858) 467-3073	lawrence_emerson@dot.ca.gov
12	Farid Nowshiravan	(949) 756-7639	farid_nowshiravan@dot.ca.gov
HQ	Rex Cluff	(916) 651-9059	rex_cluff@dot.ca.gov

Appendix C: Glossary of Terms

Automatic Detection – The most common type of automatic detection uses inductive loops (commonly referred to as “loop detectors”). New technologies are also being employed such as radar, infrared sensors, and vehicle transponder tags, similar to those used for toll roads or bridges.

Daily Vehicle-Hours of Delay – is the result of calculating $V \times D \times T$. Where, V = Volume in vehicles per hour = Number of lanes \times Vehicles per hour per lane (VPHPL), D = Duration of congestion in hours and T = Travel time (in hours) to cover a given distance under congested conditions minus the travel time at 35 mph.

Directional Mile – A one-mile length of freeway has two directional miles, regardless of number of lanes.

Duration – The length of time the freeway directional segment remains congested expressed in hours.

Congested Directional Miles – See Extent.

Extent – The length of freeway segment, by direction, experiencing speeds below 35 mph for 15 minutes or more. Extent is expressed in terms of congested directional miles CDM.

Floating Vehicle – Consists of either a fixed transmission sensor mounted in the engine compartment of a vehicle or GPS device. The transmission sensor, or tachometer, counts the number of wheel rotations in one second and sends that data to a laptop computer. Software on the computer then translates this data into meaningful time, distance, and travel speed information. A GPS system uses satellite technology to identify the location of the vehicle over time. Computer software identifies the freeway, direction of travel, and average speed of the vehicle.

High Occupancy Vehicle Lanes – Lanes on freeways restricted to vehicles carrying more than one person or to public transportation vehicles. Minimum vehicle occupancies can be either two or three people depending on the highway segment. HOV lanes are designed to encourage ridesharing.

Magnitude – The difference in time between the time it takes to travel a segment at the recorded congested speed and the travel time at 35 mph. DVHD is the term used to express the magnitude of the delay.

Metered Connector – Ramp meter on a freeway-to-freeway connector.

Nonrecurrent Congestion – Caused by events that occur irregularly such as accidents, sporting events, and maintenance or construction.

Ramp Metering – Signalized devices installed on freeway on-ramps to regulate traffic entering the freeway system.

Recurrent Congestion – A condition lasting for 15 minutes or longer where travel demand exceeds freeway capacity, as evident by vehicular speeds of 35 mph or less occurring during peak commute periods on a typical, incident-free weekday.

Surveillance Stations – All detector locations including ramp metering stations are termed surveillance stations.

Arnold Schwarzenegger
Governor

Dale E. Bonner
Secretary, Business, Transportation and Housing Agency

Will Kempton
Director, California Department of Transportation

Robert Copp
Division Chief, Traffic Operations

**For more information or additional copies of this data
compilation, please contact Rex Cluff at (916) 651-9059 or by
email: rex_cluff@dot.ca.gov**